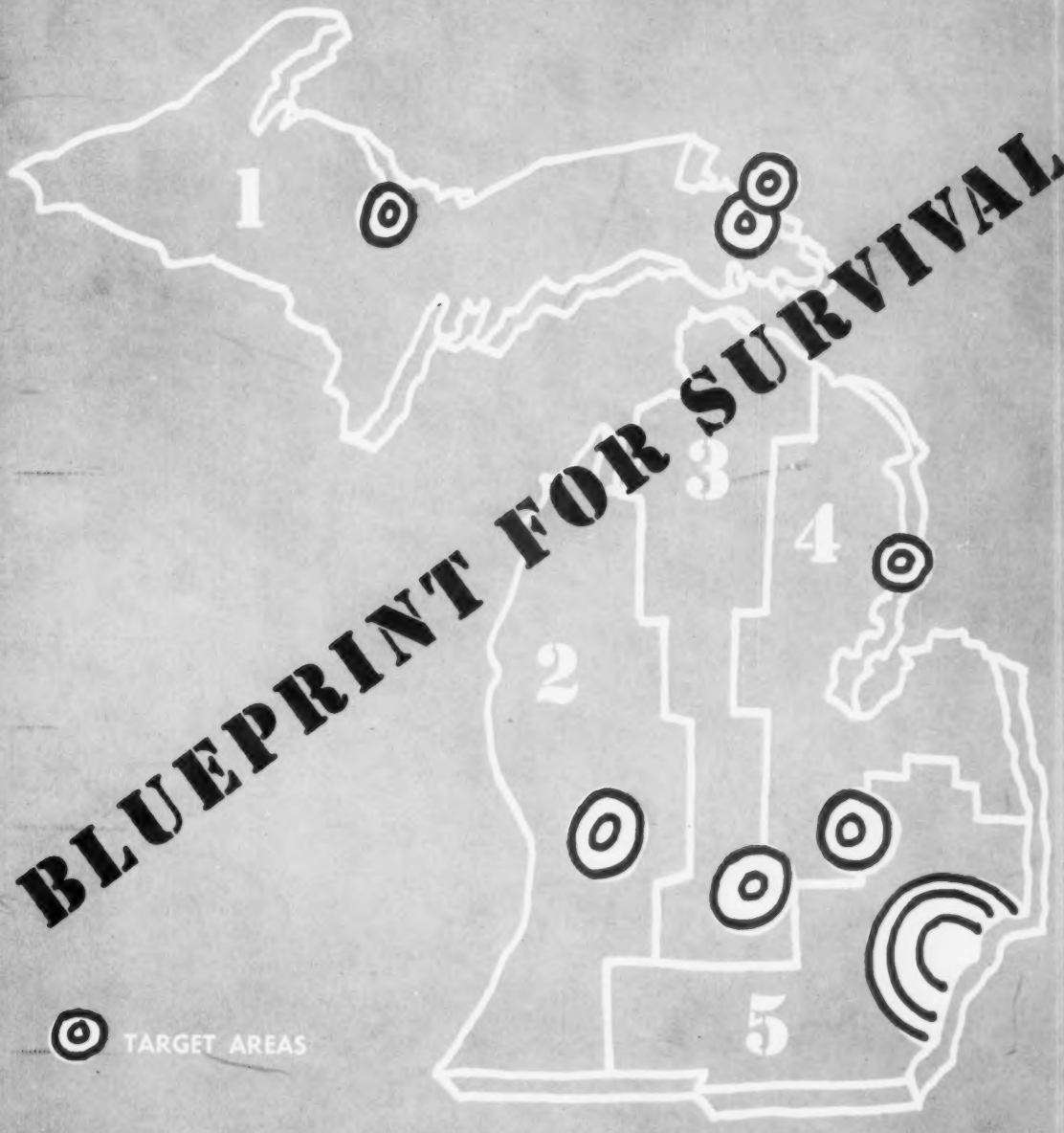
October, 1959
Volume 58
Number 10

The Journal
Michigan
STATE MEDICAL SOCIETY



BLUEPRINT FOR SURVIVAL

COMMITTEE ON NATIONAL DEFENSE

IN EPILEPSY... PREREQUISITE FOR PARTICIPATION: THERAPY

With the use of medications, epileptic students may be enabled to participate in many of the same activities as other students.[1]

REQUISITE FOR THERAPY: THE PARKE-DAVIS FAMILY OF ANTICONVULSANTS

effective anticonvulsants for most clinical needs

for control of grand mal and psychomotor seizures

Dilantin®

KAPSEALS® "In the last 15 years several new anticonvulsant agents have come into clinical use but they have not replaced diphenylhydantoin [DILANTIN] as the most effective single agent for a variety of reasons. Most of them are less effective in control of seizures, have a greater sedative effect and higher incidence of sensitivity reactions."[2]

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Phelantin®

KAPSEALS When it has been demonstrated that the combination of Dilantin and phenobarbital is helpful in a patient and that these drugs are well tolerated, the use of PHELANTIN, a capsule providing both drugs, is often a great morale builder because it enables the physician to reduce the total number of pills or capsules the patient is required to take. It is less expensive medication and it prevents the patient from manipulating the dosage.[3] PHELANTIN also contains methamphetamine (desoxyephedrine) to minimize the sedative effect of phenobarbital.

PHELANTIN Kapseals (Dilantin 100 mg., phenobarbital 30 mg., desoxyephedrine hydrochloride 2.5 mg.) are available in bottles of 100.

for the petit mal triad

Milontin®

KAPSEALS • SUSPENSION MILONTIN is one of the most effective agents for the treatment of petit mal epilepsy. Relatively free from untoward side effects, MILONTIN successfully reduces both the number and severity of petit mal attacks without increasing the frequency or severity of grand mal attacks in those patients with combined petit mal and grand mal epilepsy. Also, MILONTIN is considered an excellent choice for initiating therapy in untreated patients.[4-6]

MILONTIN Kapseals (phensuximide, Parke-Davis) 0.5 Gm., bottles of 100 and 1,000. Suspension, 250 mg. per 4 cc., 16-ounce bottles.

Celontin®

KAPSEALS CELONTIN is effective in the treatment of petit mal and psychomotor epilepsy. It provides effective control with a minimum of side effects, frequently checks seizures in patients refractory to other anticonvulsant medications, and does not tend to precipitate grand mal attacks in those patients with combined petit mal and grand mal seizures. For this reason, CELONTIN is useful in treating patients with more than one type of seizure and can be given in combination with Dilantin.[7-10]

CELONTIN Kapseals (methsuximide, Parke-Davis) 0.3 Gm., bottles of 100.

bibliography: (1) Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, Williams & Wilkins Company, 1956, p. 136. (2) Bray, P. F.: *Pediatrics* **23**:151, 1959. (3) Davidson, D. T., Jr., in Conn, H. F.: Current Therapy 1959, Philadelphia, W. B. Saunders Company, 1959, p. 512. (4) Smith, B., & Forster, F. M.: *Neurology* **4**:137, 1954. (5) Zimmerman, F. T.: *New York J. Med.* **55**:2338, 1955. (6) Lemere, F.: *Northwest Med.* **53**:482, 1954. (7) Perlstein, M. A.: *Pediat. Clin. North America*: **4**:1079 (Nov.) 1957. (8) Livingston, S., & Pauli, L.: *Pediatrics* **19**:614, 1957. (9) Carter, C. H., & Maley, M. C.: *Neurology* **7**:483, 1957. (10) Keith, H. M., & Rushton, J. G.: *Proc. Staff Meet. Mayo Clin.* **33**:105, 1958.

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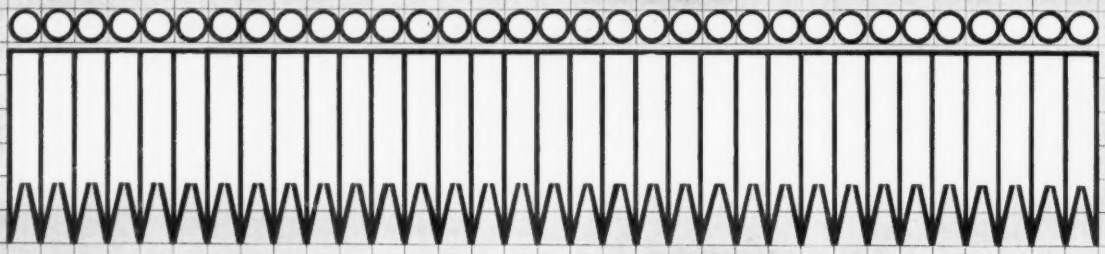
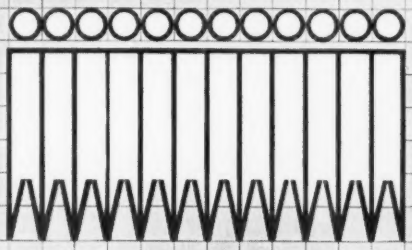
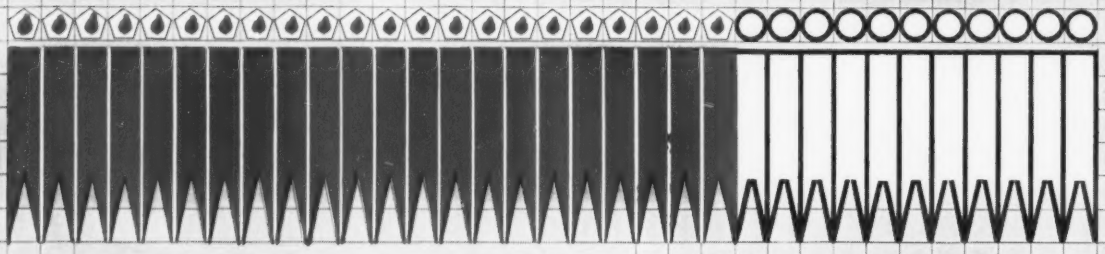
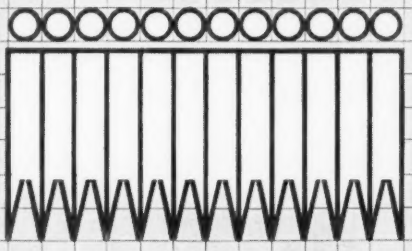


Of 45 arthritic patients
who were refractory
to other corticosteroids*





22 were successfully
treated with **Decadron**[1,2]



1. Boland, E. W., and Headley, N. E.: Paper read before the Am. Rheum. Assoc., San Francisco, Calif., June 21, 1958.
2. Bunim, J. J., et al.: Paper read before the Am. Rheum. Assoc., San Francisco, Calif., June 21, 1958.

*Cortisone, prednisone and prednisolone.

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Additional information on DECADRON is available to physicians on request.

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THE JOURNAL
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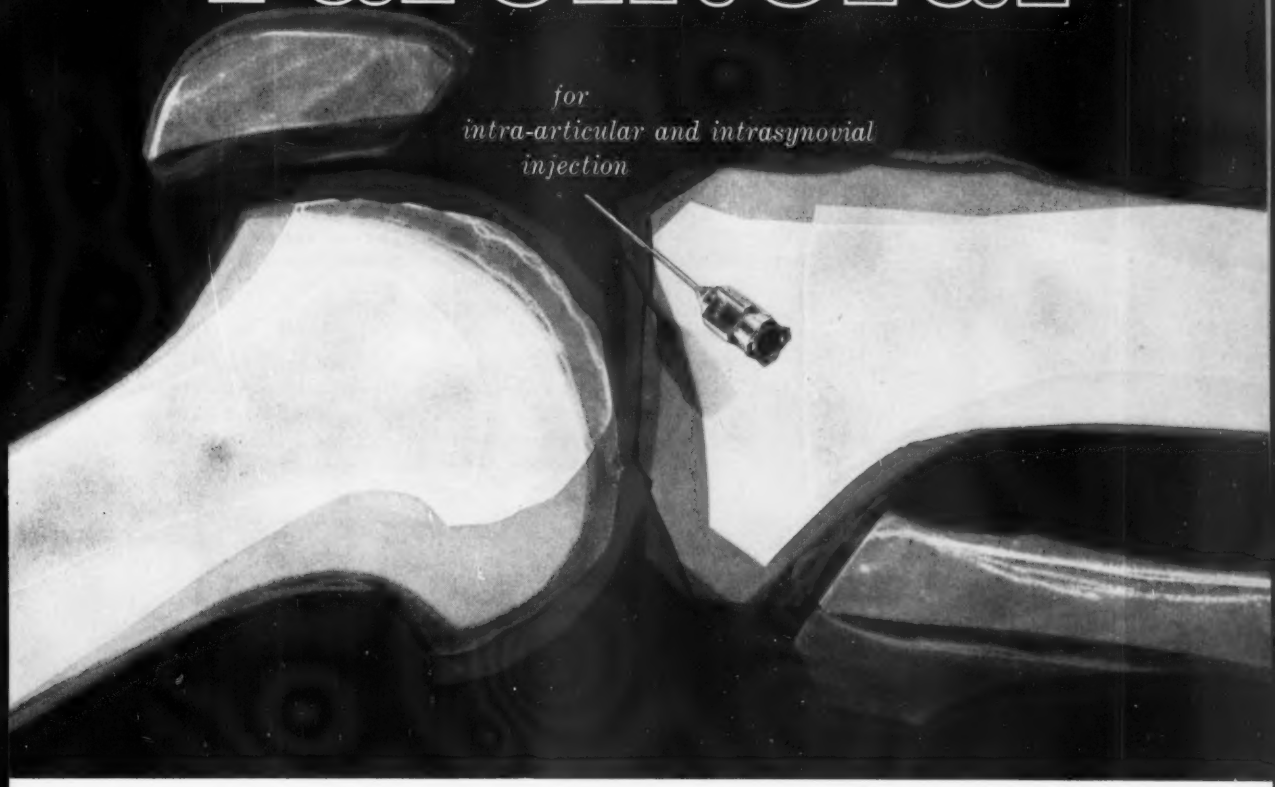

for *longer* and *more pronounced* anti-inflammatory action in the *shortest time*

- when systemic therapy is contraindicated
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Indications: rheumatoid arthritis; osteoarthritis; bursitis; peritendinitis; ganglion; intermittent hydroarthrosis; epicondylitis and related conditions.

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new hope for fetal salvage

DELA

The results of administering Delalutin before the 12th week of gestation to 82 women with habitual abortion were reported recently by Reifenstein[1] in a compilation of data supplied by 45 investigators. Every patient had experienced at least three consecutive abortions immediately preceding the treated pregnancy. More than 68% of these women were delivered successfully and uneventfully following Delalutin therapy.

Boschann,[2] in a study of pregnancies with threatened abortion, found that:

37% of 73 pregnancies were carried to term without progestational therapy

64% of 42 pregnancies were salvaged by progesterone

83% of 73 pregnancies were salvaged by Delalutin

Eichner,[3] found that in Delalutin-treated women, fetal salvage of infants below term weight (1000 to 2000 gm.) was significantly improved. 108 (76%) of 142 babies of this birth weight survived without mothers receiving progestational therapy, while 16 (100%) of 16 babies of this birth weight survived with mothers receiving Delalutin therapy. A comparison study was made of a group of repeated aborters treated with Delalutin, and a group with a similar history treated with bed rest and sedation.[4] Pregnancy salvage with Delalutin was twice that of the control group. Delalutin was found to be "highly active", well-tolerated and long-acting.

According to Tyler and Olson,[5] "These qualities of prolonged action and relative freedom from local reactions make [Delalutin] a generally more desirable therapeutic agent for intramuscular use than progesterone . . . ."

DELALUTIN BABIES WHOSE MOTHERS WERE HABITUAL ABORTERS

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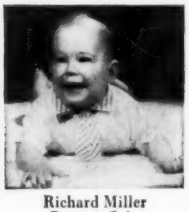

Richard Miller
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Scott Knudsen
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References: 1. Reifenstein, E. C. Jr.: *Annals N. Y. Acad. Sc.* 71:762 (July 30) 1958. 2. Boschann, H-W.: *ibid.*, p. 727. 3. Eichner, E.: *ibid.*, p. 787. 4. Hodgkinson, C. P.; Igna, E. J., and Bukeavich, A. P.: *Am. J. Obst. & Gynec.* 76:279, 1958. 5. Tyler, E. T., and Olson, H. J.: *J.A.M.A.* 169:1843, 1959.

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- unusually well-tolerated, even in large doses
- fewer injections required
- low viscosity makes administration easier

DELALUTIN is also potent and safe therapy for: threatened abortion; postpartum afterpains; amenorrhea, primary and secondary; dysfunctional uterine bleeding not associated with genital malignancy; infertility with inadequate corpus luteum function; production of secretory endometrium and desquamation during estrogen therapy; premenstrual tension; dysmenorrhea; cyclomastopathy, mastodynia, adenosis and chronic cystic mastitis.

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Supply:

Delalutin is available in vials of 2 and 10 cc., each containing 125 mg. of hydroxyprogesterone caproate in sesame oil, and benzyl benzoate.

Each of these healthy, normal babies was born by a mother with a documented previous history of true habitual abortion, who was treated during her most recent pregnancy with DELALUTIN.

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You and Your Business

Pharmaceutical Firm Wins Injunction

Smith Kline & French Laboratories, Philadelphia pharmaceutical firm, has won a preliminary injunction against a Houston drug distributor for unfair competition and trade-mark infringement.

U. S. District Court Judge Allen B. Hannay, August 11, 1959, ordered Crown Drug Company to refrain from advertising and offering for sale imitations of any of the twelve SK&F products involved in the suit. The Court also enjoined the Houston firm from encouraging substitution of SK&F products with the imitations.

In addition, it also prohibited Crown Drug Company from making any reference in its literature to any of the trade-marks owned by SK&F.

In issuing the injunction order, Judge Hannay said the "obvious purpose and effect" of Crown Drug's advertising is to "invite druggists to substitute and palm off" its imitation products in filling prescriptions calling for SK&F's trademarked products.

Judge Hannay ruled that "substitution by retail druggists of one drug for another called for by a physician's prescription is an unwarranted interference with the physician-patient relationship and a danger to public health." It is unethical, and in most states, including Texas, is condemned by law, he said.

Smith Kline & French Laboratories filed a complaint against Crown Drug Company on July 8 claiming actual damages of $200,000 and requesting punitive damages of $100,000. It also requested that damages be tripled.

Schedule for Regional Health Conferences in State

It will be easier for doctors to participate in the annual Michigan Health Conferences this fall as the project will go "on tour."

The pattern is being changed because the AMA National Rural Health Conference will be held in Michigan in 1960. The national event will be held at Grand Rapids, February 25-27. So rather than hold an annual 1960 spring Michigan Rural Health Conference, the sponsors have decided to conduct four regional health conferences this fall.

Each conference will stress three sections—one on "Health Careers" for high school youths, teachers and representatives of the many health professions; another section about the Importance of Good School and Community Health Programs," and a third section, especially for doctors, about the "Medical Aspects of Handling Severely Injured."

Communities selected for these special, one-day conferences are Marquette, Kalamazoo, Mount Pleasant and Detroit. The first one is scheduled for Thursday, October 29 at Northern Michigan College in Marquette. The remaining Conferences are slated for the first three Thursdays in November—November 5 at Western Michigan University, Kalamazoo; November 12 at Central Michigan University, Mount Pleasant; and November 19 at McGregor Memorial Conference Center, Wayne State University, Detroit.

Mrs. Paul Ivkovich, of Reed City, president-elect of the Auxiliary to the Michigan State Medical Society, has been named chairman of the attendance committee for the "Health Careers Programs" in all the Conferences.

Members of County Medical Societies are urged to attend the Conferences.

Highlights of the Executive Committee of The Council

Meeting of August 19, 1959 in Traverse City

- **Resolution** to the memory of the late Ralph W. Shook, M.D., Councilor and long time Chairman of the Finance Committee, was adopted by members of the Executive Committee of The Council standing in silent tribute.
- **Report of progress** on the new MSMS building was presented by K. H. Johnson, M.D. This included additional fire insurance coverage with added premium of $461.60.
- **The program for the cornerstone laying ceremony** of the new MMS building, scheduled for Sunday, September 27 at 3:30 p.m., and the materials to be sealed in the cornerstone, were approved.
- **Credit Rating.**—Treasurer Wm. A. Hyland, M.D., reported he had arranged, at the request of the Chairman of the Finance Committee, a credit rating at the Michigan National Bank of approximately $300,000.00 at a surprisingly favorable rate of interest, the loan based on the MSMS financial statement which obviates necessity of the Society's assuming a mortgage. Insurance companies asked for a higher rate of interest and a premium (penalty) if the loan were paid off in less than the originally specified number of years. This information was referred to The Council, September 27 meeting.
- **Veterans' Administration Hometown Care Program.**—Report was presented that the VA objects to Michigan Medical Service informing Michigan doctors about some of the changes in the new VA contract. The Executive Committee of The Council advised Michigan Medical

(Continued on Page 1558)

for the acute asthmatic attack

rapid control by the oral route
without fear of g.i. intolerance

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Dosage: Adults—2 tablespoonfuls t.i.d. Children—2 to 3 teaspoonfuls if over 12 years; 1 to 2 teaspoonfuls if 6-12 years; 1 teaspoonful if 3-6 years; ½ to 1 teaspoonful if 1-3 years. May be repeated after 8 hours.

Bottles of 1 pint, 1 gallon.

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Seymour, Indiana

...and for routine management **SYNATE TABLETS**

for subacute
and chronic
asthma
...pulmonary
emphysema
and bronchiectasis

comprehensive
symptomatic control
by the oral route
without fear of
g.i. intolerance

SYNATE

Trademark

TABLETS

the optimally effective, well-tolerated oral xanthine[1-3]—theophylline sodium glycinate—in a comprehensive formulation for full symptomatic control...keeps patient comfortable and reduces incidence and severity of acute attacks • in emphysema due to allergic asthma or chronic infectious bronchitis, it provides rapid bronchial dilatation, as well as decongestant and expectorant benefits

Each SYNATE Tablet contains:

Theophylline Sodium Glycinate (SYNOPHYLATE®)	360 mg.
Racephedrine Hydrochloride	30 mg.
Potassium Iodide	300 mg.
Secobarbital (Warning: May be habit-forming)	20 mg.
Niacinamide	40 mg.

Dosage: One tablet q.i.d. with water.
Bottles of 100, 500.

1. United States Dispensatory (Osol-Farrar), ed. 25, Philadelphia, Lippincott, 1955, p. 1412. 2. A.M.A. Council on Drugs: New and Nonofficial Drugs 1959, Philadelphia, Lippincott, 1959, p. 389. 3. Grollman, A.: Pharmacology and Therapeutics, ed. 3, Philadelphia, Lea & Febiger, 1958, p. 208.

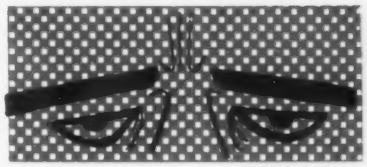
THE CENTRAL PHARMACAL COMPANY
Products Born of Continuous Research
Seymour, Indiana

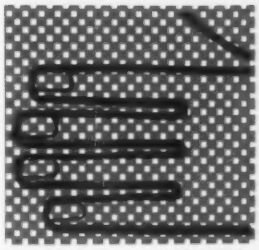
...and for the acute attack
ELIXIR SYNOPHYLATE

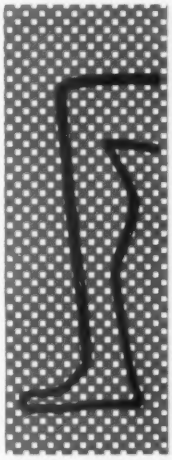
Announcing a new product:

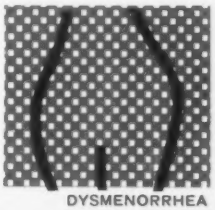
EXCEDRIN*

FOR MIDDLE-GRADE PAIN


HEADACHE

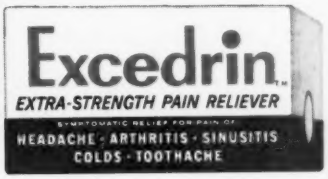

ARTHRITIS


MUSCLE STRAINS


DYSMENORRHEA

SINUSITIS

When "a couple of aspirins" isn't enough, and a narcotic is unwarranted.



*Trade-mark

Extra-strength formula — 2 tablets of non-narcotic EXCEDRIN contains the total relief-giving ingredients of 3 ordinary pain-relieving tablets. In addition, the extra caffeine content provides increased cerebral stimulation. Each EXCEDRIN tablet supplies:

Salicylamide.....2 grs. Aspirin.....2¼ grs.
Acetophenetidin..2¼ grs. Caffeine.....1 gr.

Indications: For analgesic and anti-inflammatory benefits in: muscle-connective tissue strain, headache, sinus congestion, severe colds and dysmenorrhea; and for temporary relief of minor arthritic pain.

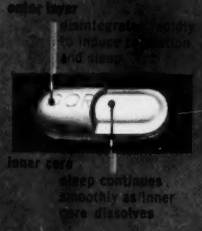
Dosage: EXCEDRIN is taken in normal dosage: 2 tablets every 4 hours, or as needed.

Supplied: Boxes of 12 and bottles of 36 and 100 tablets.

Bristol-Myers Co., 630 Fifth Ave., New York 20, N.Y.

For those patients who complain

carries your patients through the middle of the night



Each Nebralin timed-release tablet contains:

Dorsital* ..... 90 mg.
Warning: May be habit forming

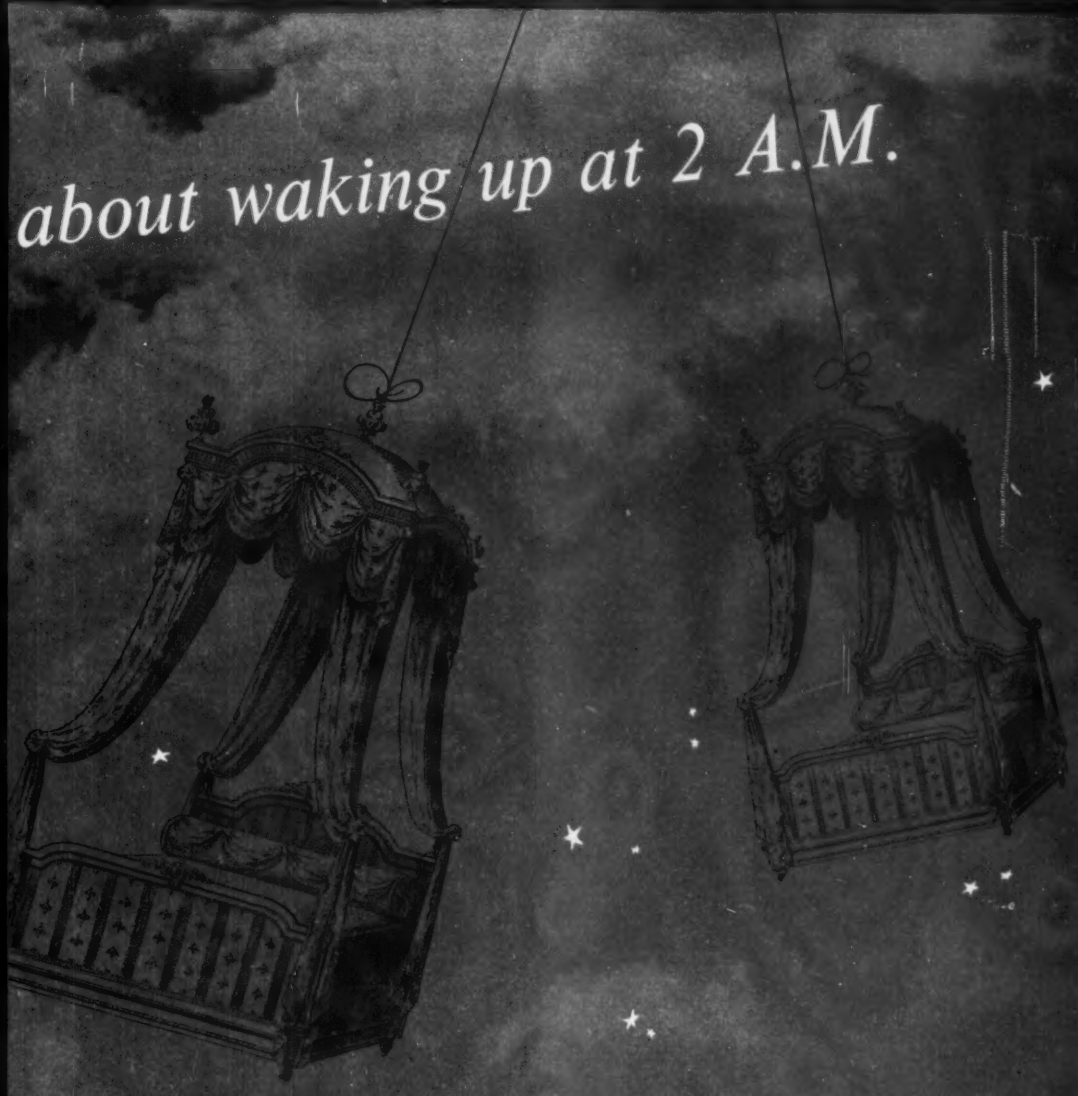
Mephenesin ..... 425 mg.

*Dorsey brand of pentobarbital

CAUTION: Federal law prohibits dispensing without prescription

Dosage: One or two tablets ½ hour before retiring.

about waking up at 2 A.M.



nebralin

timed-release tablet

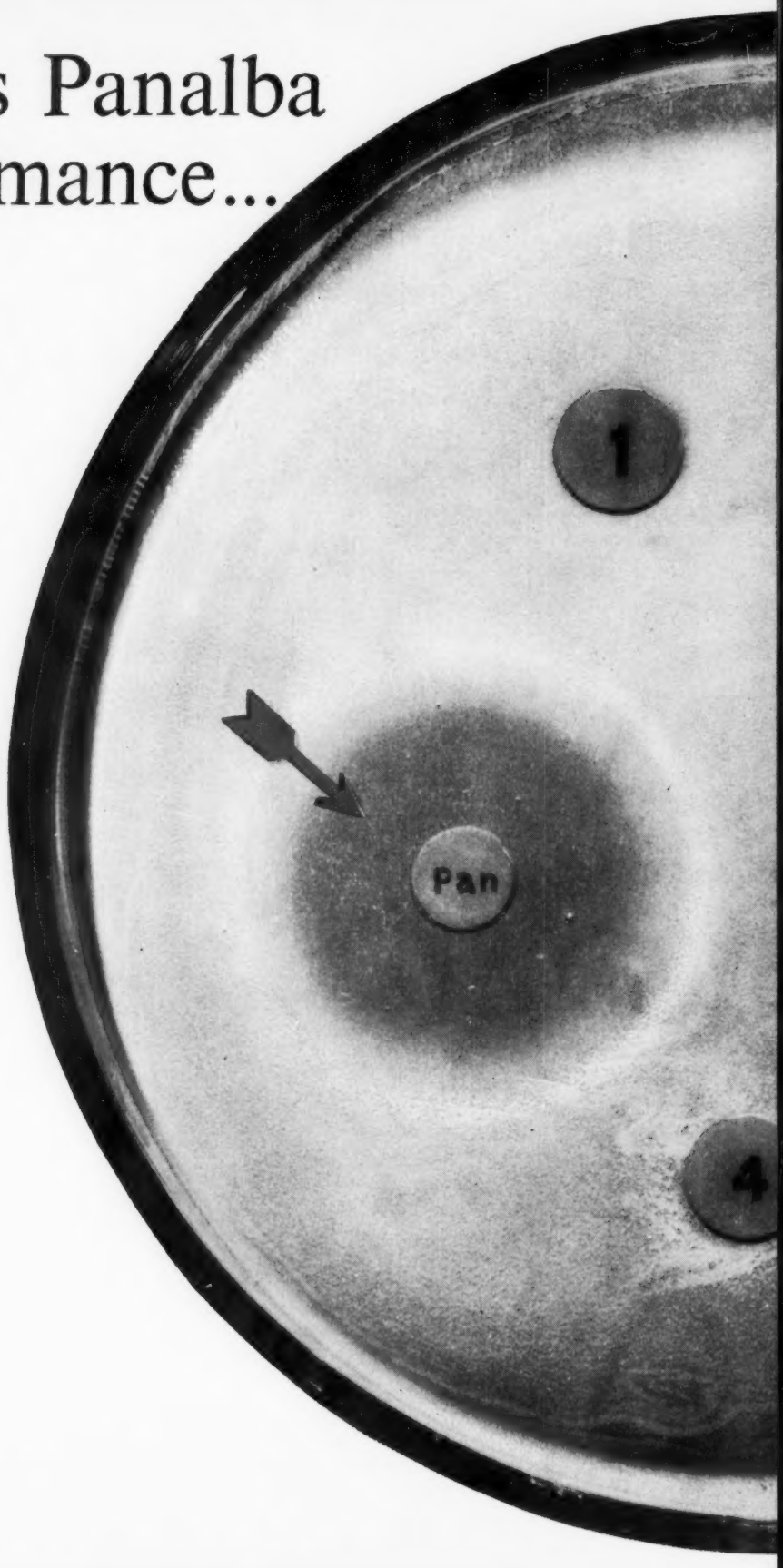
timed-release action for a full night's sleep

NEBRALIN is designed to duplicate the normal sleep pattern. It encourages muscular relaxation and induces sustained, relaxed sleep by the release of Dorsital and mephenesin in a timed-release tablet. Rapid-acting mephenesin quickly relaxes skeletal muscles to overcome "fatigue-tension" and conditions the body for sleep. Dorsital provides CNS sedation to induce sound, relaxed sleep. The initial and sustaining dosages are designed to keep the amount of barbiturate to be inactivated at any one time at a low level tapering toward morning. Evidence indicates that mephenesin is capable of producing sleep,[1] and when combined with a barbiturate enhances barbiturate action.[2,3,4] Moreover, the integrated action of the two components permits smaller dosages of each,[1] assuring your patients refreshed awakenings without "morning hangover."

1 Schlesinger, E. B.: Tr. New York Acad. Sc. 2:6, (Nov.) 1948.
2 Richards, R. K., and Taylor, J. D.: Anesthesiology 17:414, 1956.
3 Shideman, F. E.: Postgrad. Med. 24:207, 1958.
4 Berger, F.: Pharmacol. Rev. 1:243, 1949.

SMITH-DORSEY · a division of The Wander Company · Lincoln, Nebraska · Peterborough, Canada

This is Panalba performance...



in pneumonia

. . . into a mixed culture of the three organisms commonly involved in pneumonia . . . *K. pneumoniae*, *Diplococcus pneumoniae*, and *Staphylococcus aureus* (in this case a resistant strain) . . . we introduce the five most frequently used antibiotics.

Twenty-four hours later (in this greatly enlarged photograph), note that only *one* of the five leading antibiotics has stopped *all* the organisms, including the resistant staph! This is Panalba.

In your next pneumonia patient . . . in *all* your patients with potentially-serious infections . . . provide this extra protection with your prescription:

Dosage—1 or 2 capsules 3 or 4 times a day.
Supplied—Capsules containing Panmycin phosphate equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin as novobiocin sodium, in bottles of 16 and 100.
Now available: new Panalba Half-Strength Capsules in bottles of 16 and 100.

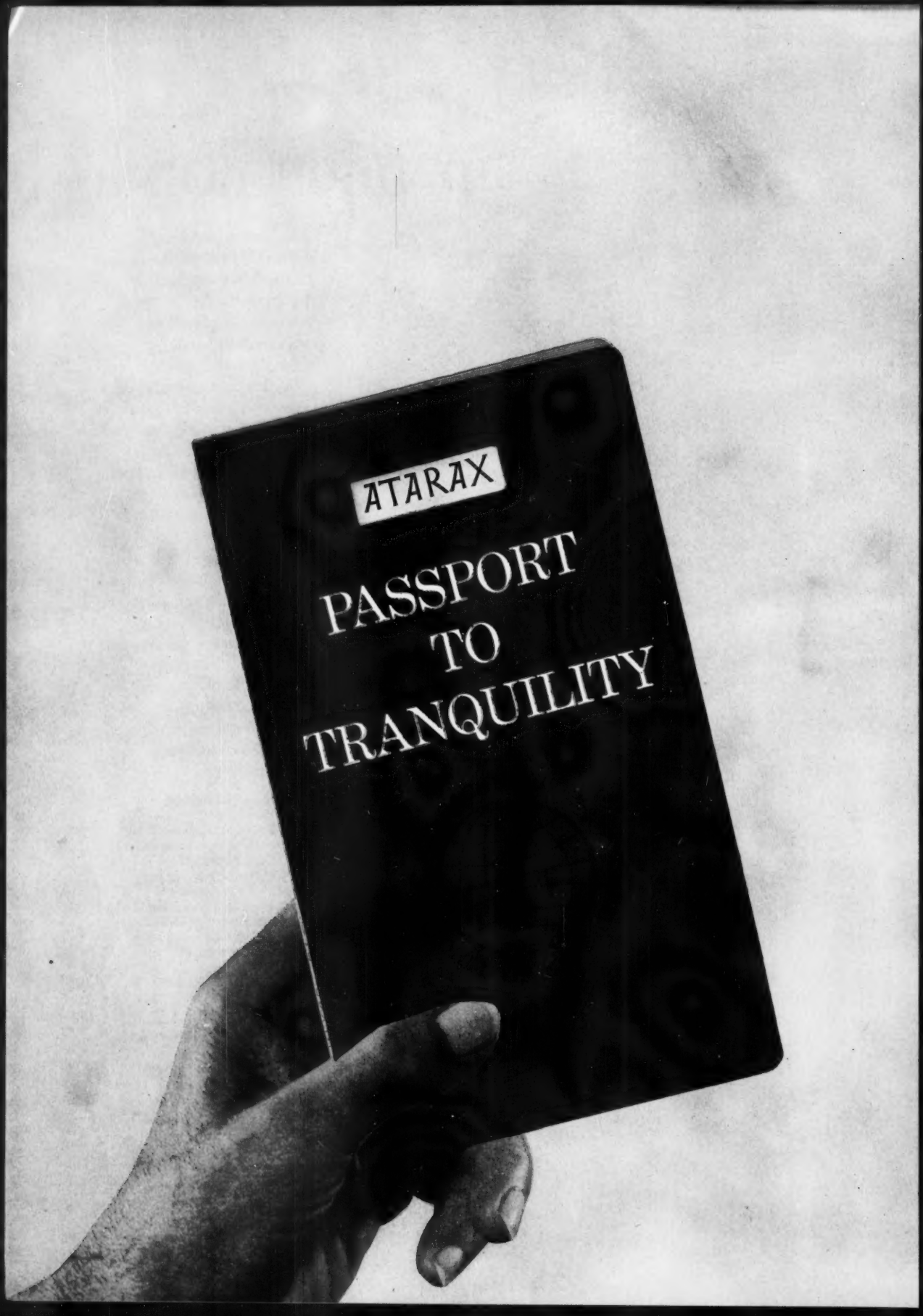
Panalba*

(Panmycin* Phosphate plus Albamycin*)

The broad-spectrum antibiotic of *first* resort

Upjohn The Upjohn Company Kalamazoo, Michigan

*TRADEMARK, REG. U. S. PAT. OFF.


ATARAX
PASSPORT
TO
TRANQUILITY

Passport

☞ **a universal record of effectiveness**

In anxiety, tension and agitation, ATARAX "... produced a more favorable state of calm and tranquility than any drug previously used."[1]

☞ **widest latitude of safety and flexibility**

No serious adverse reaction ever documented – five dosage forms and sizes

☞ **chemically distinct among tranquilizers**

Not a phenothiazine or a meprobamate

☞ **added frontiers of usefulness**

These unique benefits in specific indications

ANTIHISTAMINIC
ANTIARRHYTHMIC
ANTISECRETORY

BACKED BY A WORLD OF EXPERIENCE

Dosage: ADULTS, one 25 mg. tablet, or one tbsp. Syrup q.i.d. CHILDREN – 3-6 years, one 10 mg. tablet or one tsp. Syrup t.i.d.; over 6 years, two 10 mg. tablets or two tsp. Syrup t.i.d.

Supplied: Tiny 10 mg., 25 mg., and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

References: 1. Farah, L.: Internat. Rec. Med. *169*:379 (June) 1956. 2. Smigel, J. O., et al.: J. Am. Geriatrics Soc. 7:61 (Jan.) 1959. 3. Feinberg, A. R., et al.: J. Allergy *29*:358 (July) 1958. 4. Eisenberg, B. C.: J.A.M.A. *169*:14 (Jan. 3) 1959. 5. Maryssael, L.: Bruxelles-méd. *38*:141 (Jan. 26) 1958. 6. Pfleger, R.: Med. Klin. *53*:1030 (June 5) 1958. 7. Over 200 laboratory and clinical papers from 14 countries.

ATARAX®

PASSPORT TO TRANQUILITY

(brand of hydroxyzine)

Rx PFIZER

New York 17, N. Y.
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being

Highlights of the Executive Committee of The Council

(Continued from Page 1548)

Service, as fiscal agent for the Michigan State Medical Society in this program, to continue advising Michigan physicians of changes in the VA contracts.

- **Medicare.**—The Medicare officials requested that a supplemental agreement be signed by MSMS which would change a fee contrary to previous agreement approved by the MSMS Committee (particularly Code No. 2447 which provided that subsequent exchange transfusions shall be 50% of Code No. 2446). The Executive Committee substantiated the action (previous agreement) of its Committee and instructed MMS to so inform Medicare.
- **D. Bruce Wiley, M.D.,** resigned as Councilor of the Fifteenth District having accepted the office of secretary of MSMS. The resignation was accepted, with a vote of appreciation for outstanding service.
- **Dates for MSMS Annual Sessions** in Grand Rapids for the years 1961-1963-1966-1968 were selected.
- **Arrangements were made for a joint meeting** of The Council with representatives of the National Blue Shield Plans in East Lansing, Sunday, September 27.
- **Uniform Fee Schedule for Governmental Welfare Agencies.**—The plan of distributing the newly-printed 1959 Fee Schedule was authorized.
- **Legal Counsel Lester P. Dodd** reported on recent meetings with officials of the Bay County Medical Society and with the Grand Traverse-Leelanau-Benzie County Medical Society for a discussion of two problems. Mr. Dodd's opinion on tissue committee records, as sent to a member in Saginaw, was reported; also matter of a certain physician sending letters to former patients and others advising them of his ability to render special medical service, which Mr. Dodd felt was an unethical rather than a legal question.
- **Committee Reports.**—The following reports were presented: Officers Night Dinner Dance, meeting of July 23; Venereal Disease Control Committee, meeting of August 6; Courses on Medical Economics and Ethics, meeting of August 12; Ninth Councilor District Medical Care Insurance Committee, meeting of August 5; Tuberculosis Control Committee, meeting of July 1; Relative Value Study Committee, meeting of August 6 (deferred to The Council meeting of September 27); Medical Advisory Committee to Michigan Hospital Service, meeting of June 25.
- **Matters of mutual interest** were presented by A. E. Heustis, M.D., Michigan Health Commissioner.
- **The development of a documentary report** on what the Michigan State Medical Society and its committees have done in recent years in connection with Michigan Medical Service was authorized. Copies of this factual document with no editorializing will be presented to all members of the MSMS House of Delegates on September 27.
- **The Executive Director** requested instruction on what items should be included in the Supplemental Annual Report of The Council. A number of recommendations were made.
- **Appointments:**

  1. Vice Chairman of The Council T. P. Wickliffe, M.D., Calumet, to represent MSMS at Kentucky State Medical Association Annual Session, September 22-24.
  2. John M. Dorsey, M.D., Detroit, to represent MSMS at Kalamazoo State Hospital Centennial, September 30.
  3. Chairman A. E. Schiller, M.D., and President-Elect Milton A. Darling, M.D., to represent MSMS at meeting to consider possibility of using Eloise and certain Veterans' Administration hospitals for teaching purposes.
  4. Ralph E. Carlson, M.D., of Iron Mountain, as member of the MSMS Medical Advisory Committee to Michigan State Medical Assistants Society.
  5. Ruth Herrick, M.D., Grand Rapids, to the MSMS Venereal Disease Control Committee.
  6. Luther R. Leader, M.D., Detroit, plus the secretary of the Medical Care Insurance Committee, to represent MSMS at the AMA Conference on Relative Value Studies, Indianapolis, September 12.
  7. E. H. Watson, M.D., Ann Arbor, to represent MSMS on Project Committee on Adoptions of Michigan Welfare League.
  8. J. W. Rice, M.D., Jackson, and Public Relations Counsel H. W. Brenneman to represent MSMS at meeting of American Association of Medical Assistants, October 14-18.
  9. L. A. Drolett, M.D., Lansing and D. Bruce Wiley, M.D., Utica, to represent MSMS at AMA national Legislative Conference, St. Louis, Mo., October 2-3.

- **Public Relations Counsel's report** included announcement of Press Dinner for 1959 Annual Session; progress report on TV Committee Survey; report on MSMS exhibit at State and county fairs; advertising of Annual Session through local newspaper advertisements; television publicity at Annual Session; and MSMS policy re bill in Congress covering deductions from federal employes' salaries toward health insurance.
- **A vote of thanks** was extended to President-Elect and Mrs. Milton A. Darling for their hospitality to the Executive Committee of The Council on this occasion.

for the tense and nervous patient

relief comes fast and comfortably

–does not produce autonomic side reactions
–does not impair mental efficiency, motor control, or normal behavior.

Usual Dosage: One or two 400 mg. tablets t.i.d.

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets or as MEPROTABS*—400 mg. *unmarked,* coated tablets.

Miltown®

meprobamate (Wallace)

WALLACE LABORATORIES / *New Brunswick, N. J.*

CM-9470

NOW

. . . a new way to relieve pain and stiffness in muscles and joints

indicated in:

MUSCLE STIFFNESS

LUMBOSACRAL STRAIN

SACROILIAC STRAIN

WHIPLASH INJURY

BURSITIS

SPRAINS

TENOSYNOVITIS

FIBROSITIS

FIBROMYOSITIS

LOW BACK PAIN

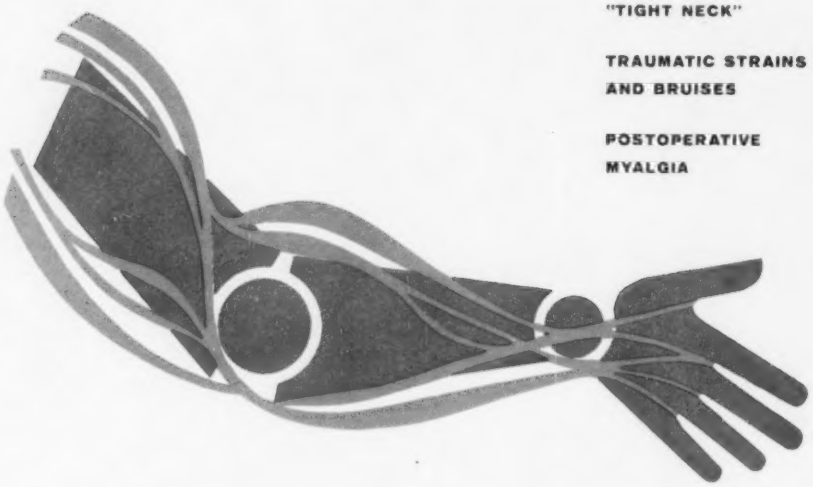
DISC SYNDROME

SPRAINED BACK

"TIGHT NECK"

TRAUMATIC STRAINS AND BRUISES

POSTOPERATIVE MYALGIA



■ Exhibits unusual analgesic properties, different from those of any other drug ■ Specific and superior in relief of SOMAtic pain ■ Modifies central perception of pain without abolishing natural defense reflexes ■ Relaxes abnormal tension of skeletal muscle

SOMA™

N-isopropyl-2-methyl-2-propyl-1, 3-propanediol dicarbamate

■ More specific than salicylates ■ Less drastic than steroids

■ More effective than muscle relaxants

SOMA has an unique analgesic action. It apparently modifies central pain perception without abolishing peripheral pain reflexes. SOMA is particularly effective in relieving joint pain. Patients say that they feel better and sleep better with SOMA than with previously used analgesic, sedative or relaxant drugs.
SOMA also relaxes muscle hypertonia, with its stresses on related joints, ligaments and skeletal structures.

ACTS FAST. Pain-relieving and relaxant effects start in 30 minutes and last 6 hours.

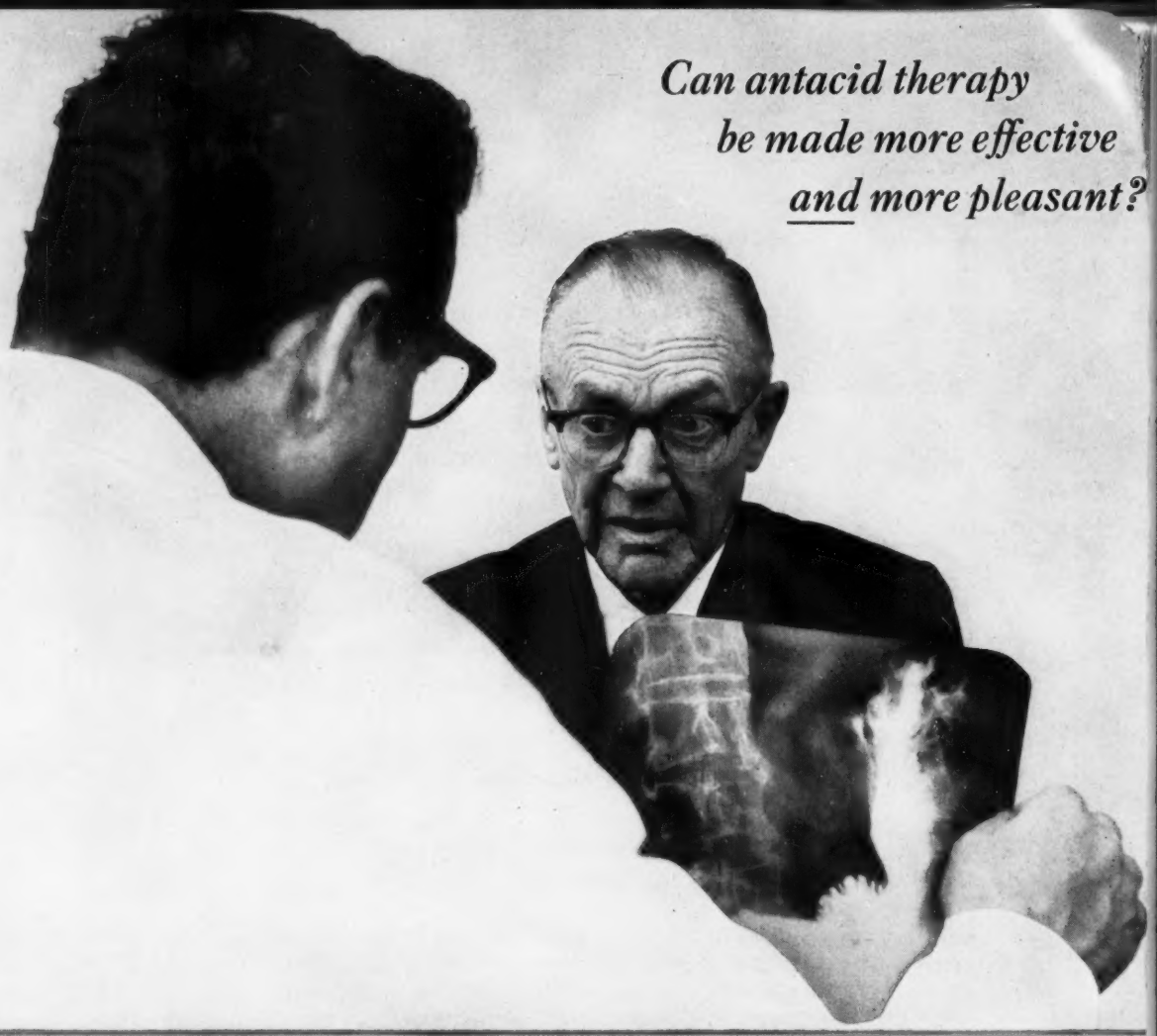
NOTABLY SAFE. Toxicity of SOMA is extremely low. No effects on liver, endocrine system, blood pressure, blood picture or urine have been reported. Some patients may become sleepy, particularly on high dosage.

EASY TO USE. Usual adult dose is one 350 mg. tablet 3 times daily and at bedtime.

SUPPLIED: Bottles of 50 white coated 350 mg. tablets.

Literature and samples on request.

WALLACE LABORATORIES, NEW BRUNSWICK, N. J.



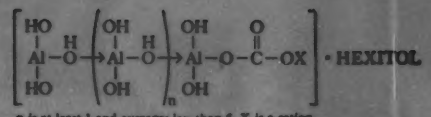
THE MOST SIGNIFICANT IMPROVEMENT IN ANTACID THERAPY SINCE THE INTRODUCTION OF ALUMINUM HYDROXIDE IN 1929

NEW Creamalin® ANTACID TABLETS

Each Creamalin Antacid Tablet contains 320 mg. specially processed, highly reactive, short polymer dried aluminum hydroxide gel, (stabilized with hexitol), with 75 mg. magnesium hydroxide

1. *Neutralizes acid faster (quicker relief)*
2. *Neutralizes more acid (greater relief)*
3. *Neutralizes acid longer (more lasting relief)*
4. *No constipation • No acid rebound*
5. *More pleasant to take*

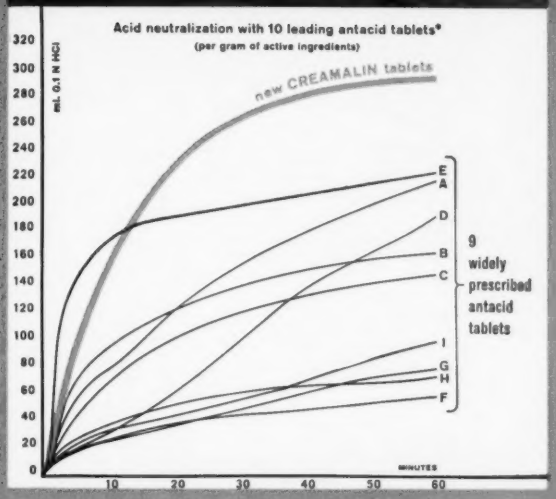
a new high in effectiveness and palatability



n is at least 1 and averages less than 6. X is a cation.

CREAMALIN NEUTRALIZES *MORE* ACID *FASTER*

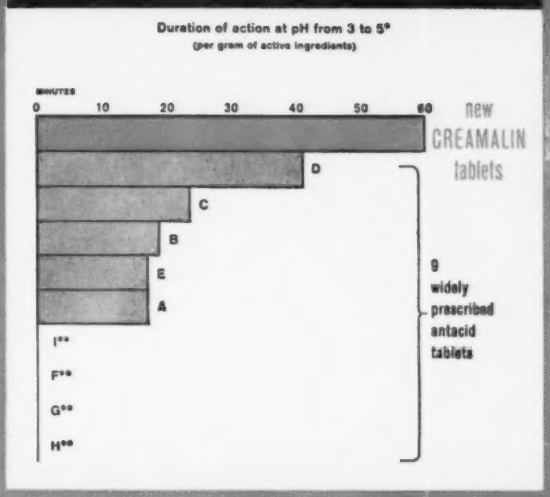
Quicker Relief · Greater Relief



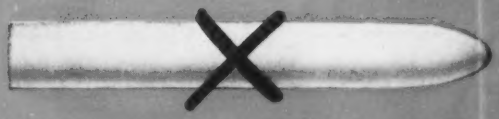
Tablets were powdered and suspended in distilled water in a constant temperature container (37°C) equipped with mechanical stirrer and pH electrodes. Hydrochloric acid was added as needed to maintain pH at 3.5. Volume of acid required was recorded at frequent intervals for one hour.

CREAMALIN NEUTRALIZES *MORE* ACID *LONGER*

More Lasting Relief



*Hinkel, E. T., Jr., Fisher, and Tainter, M. L.: A new highly reactive aluminum hydroxide complex for gastric hyperacidity. To be published.
**pH stayed below 5.



No chalky taste. New CREAMALIN tablets are not chalky, gritty, rough or dry. They are highly palatable, soft, smooth, easy to chew, mint flavored.

• NO ACID REBOUND • NO CONSTIPATION
• NO SYSTEMIC EFFECT

Adult Dosage: Gastric hyperacidity: 2 to 4 tablets as necessary. Peptic ulcer or gastritis: 2 to 4 tablets every two to four hours. Tablets may be chewed, swallowed with water or milk, or allowed to dissolve in the mouth.

Supplied: Bottles of 50, 100, 200 and 1000.

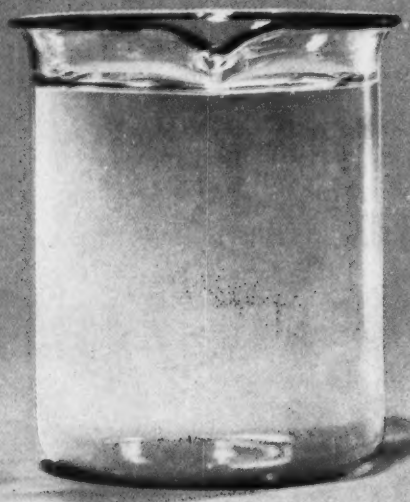
Winthrop LABORATORIES · NEW YORK 18, NEW YORK

avoid the risk of insoluble, irritating aspirin particles

Chief among the drawbacks to aspirin usage is gastric intolerance. This ranges from mild upset and "heartburn" to severe hemorrhagic gastritis.[1-10] Studies performed in conjunction with gastrectomy[4, 5] and gastroscopy[2] have shown insoluble aspirin particles firmly adherent to the gastric mucosa and imbedded between rugae. Reactions varying from mild hyperemia to erosive gastritis have been reported to occur in the areas immediately surrounding these adherent particles.[2, 4-6] This is reported to be particularly true in patients with peptic ulcer.[4]

CALURIN is the freely soluble, stable calcium aspirin complex. Its high solubility forestalls gastric irritation or damage

Regular aspirin crystals 24 hours after being mixed into water.

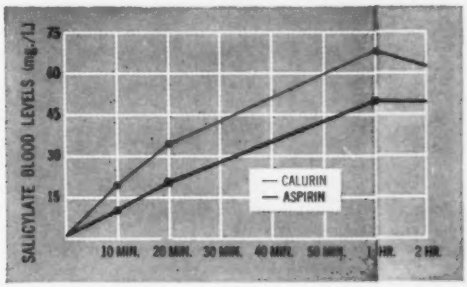


Calurin crystals in solution one minute after being mixed into water.

CALURIN*

STABLE SOLUBLE CALCIUM-ACETYLSALICYLATE-CARBAMIDE

Particle-induced ulceration — section through lesion found in gastrectomy specimen. An aspirin particle was found firmly imbedded in this undermined erosion. Such lesions may be associated with the relative insolubility of aspirin, which remains in particulate form after dispersion in gastric contents.



Calurin, being freely soluble, is promptly available for absorption into the systemic circulation. Salicylate blood levels in 12 subjects receiving both Calurin and plain aspirin were found to rise more than twice as high within ten minutes following Calurin. Also, these levels persisted higher for at least two hours.[11]

CALURIN is the aspirin of choice, especially when high-dosage, long-term therapy is indicated:

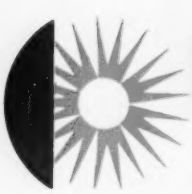
1. High solubility forestalls gastric irritation or damage. This advantage is of special importance in arthritis and other conditions requiring high-dosage, long-term therapy.
2. Produces high salicylate blood levels rapidly for prompt analgesic, anti-pyretic, anti-arthritic effect.
3. Sodium-free — for safer long-term therapy.
4. Flavored: can be chewed or dissolved in the mouth without water if desired — an advantage for patients requiring aspirin administration during the night and for pediatric patients.

Dosage: Each tablet of Calurin is equivalent to 300 mg. (5 gr.) of acetylsalicylic acid. For relief of pain and fever in adult patients, the usual dose of Calurin is 1 to 3 tablets every 4 hours, as needed; in arthritic states, 2 or 3 tablets 3 or 4 times daily; in rheumatic fever, 3 to 5 tablets 4 or 5 times daily. For children over 6 years, the usual dose is 1 tablet every 4 hours; for children 3 to 6 years, ½ tablet every 4 hours, as required. Not recommended for children under 3.

REFERENCES: 1. Waterson, A. P.: Aspirin and gastric haemorrhage, Brit. M. J. 2:1531, 1955. 2. Douthwaite, A. H., and Lintott, G. A. M.: Gastroscopic observation of the effect of aspirin and certain other substances on the stomach, Lancet 2:1222, 1938. 3. Editorial Comments: The effect of acetylsalicylic acid (aspirin) on the gastric mucosa, Canad. M. A. J. 80:47, 1959. 4. Muir, A., and Cossar, I. A.: Aspirin and ulcer, Brit. M. J. 2:7, 1955. 5. Muir, A., and Cossar, I. A.: Aspirin and gastric haemorrhage, Lancet 1:539, 1959. 6. Schneider, E. M.: Aspirin as a gastric irritant, Gastroenterology 33:616, 1957. 7. Bayles, T. B., and Tenckhoff, H.: Salicylate therapy in rheumatic diseases, Scientific Exhibit, Ann. Mtg. A. M. A., San Francisco, Calif., June, 1958. 8. Batterman, R. C.: Comparison of buffered and unbuffered acetylsalicylic acid, New Eng. J. M. 258:213, 1958. 9. Cronk, G. A.: Laboratory and clinical studies with buffered and nonbuffered acetylsalicylic acid, New Eng. J. M. 258:219, 1958. 10. Editorial: Aspirin plain and buffered, Brit. M. J. 1:349, 1959. 11. Smith, P. K.: Plasma concentration of salicylate after the administration of acetylsalicylic acid or calcium acetylsalicylate to human subjects, Report submitted to Smith-Dorsey from Dept. of Pharmacology, Geo. Washington Univ. School of Medicine, Washington, D. C., Sept. 5, 1958.

*TRADEMARK

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska



NIAMID*

the mood brightener

EFFECTIVE AND WELL TOLERATED

in depression

NIAMID has been found to be strikingly effective and well tolerated in a broad range of depressive states including a wide variety of the milder depressive syndromes, as well as the masked depression so frequently seen in general practice. These syndromes include: depression associated with the menopause, postoperative depressive states and senile depression; depression accompanying chronic or incurable illness, such as gastrointestinal and cardiovascular disorders and inoperable cancer.

in angina pectoris

NIAMID, in intensive clinical tests, has proved to have a high degree of safety and to be a valuable adjunct in the management of the anginal syndrome. NIAMID produces striking symptomatic improvement in angina patients—markedly reduces the pain, severity and frequency of anginal episodes, reduces nitroglycerin requirements, and provides an increased sense of well-being. Since dramatic improvement is seen in some patients, it is wise to advise the patient against overexertion—his disorder still holds potential dangers despite relief of symptoms.

DOSAGE: Start with 75 mg. daily in single or divided doses. After a week or more, adjust the dosage, depending upon patient response, in steps of one or one-half 25 mg. tablet. Once improvement is seen, gradually reduce dosage to the maintenance level. Many patients respond to NIAMID within a few days, others in 7 to 14 days. A few patients may require as much as 200 mg. daily over a longer period of time before significant improvement is seen.

PRECAUTIONS: Side effects are infrequent and mild, and often lessened or eliminated by a reduction in dosage. Hypotensive effects have rarely been noted and no jaundice or other evidence of liver damage has been reported in patients receiving NIAMID. However, in patients with a history of liver disease, the possibility of hepatic reactions should be kept in mind.

SUPPLY: NIAMID is available as 25 mg. (pink) and 100 mg. (orange) scored tablets.

Already clinically proved in several thousand patients—

Complete references and a Professional Information Booklet giving detailed information on NIAMID are available on request.

Pfizer *Science for the world's well-being*

*Trademark for brand of nialamide

PFIZER LABORATORIES, Division, Chas. Pfizer & Co., Inc., Brooklyn 6, New York

CASE HISTORY OF AN ARTHRITIC

Age: 55 Sex: Male Race: White

Diagnosis: Rheumatoid arthritis.

Previous Therapy:
40 mg. triamcinalone per day.

Complicating States:
Duodenal ulcer, steroid intoxication.

Current Therapy: ARTHROPAN Liquid.

Results: The patient improved on ARTHROPAN and "...is now on Choline Salicylate [ARTHROPAN] alone and has returned to work."[1]

SUPPLIED: 8 and 16 oz. bottles.
Each ml. of ARTHROPAN Liquid contains 174 mg. of Choline Salicylate.
Each teaspoonful (5 ml.) contains 870 mg. of Choline Salicylate.

1. Clark, G.M.: Personal Communication, 1958.

ARTHROPAN T.M.
LIQUID

BRAND OF CHOLINE SALICYLATE

The Purdue Frederick Company
DEDICATED TO PHYSICIAN AND PATIENT SINCE 1892
NEW YORK 14, N.Y. | TORONTO 1, ONTARIO

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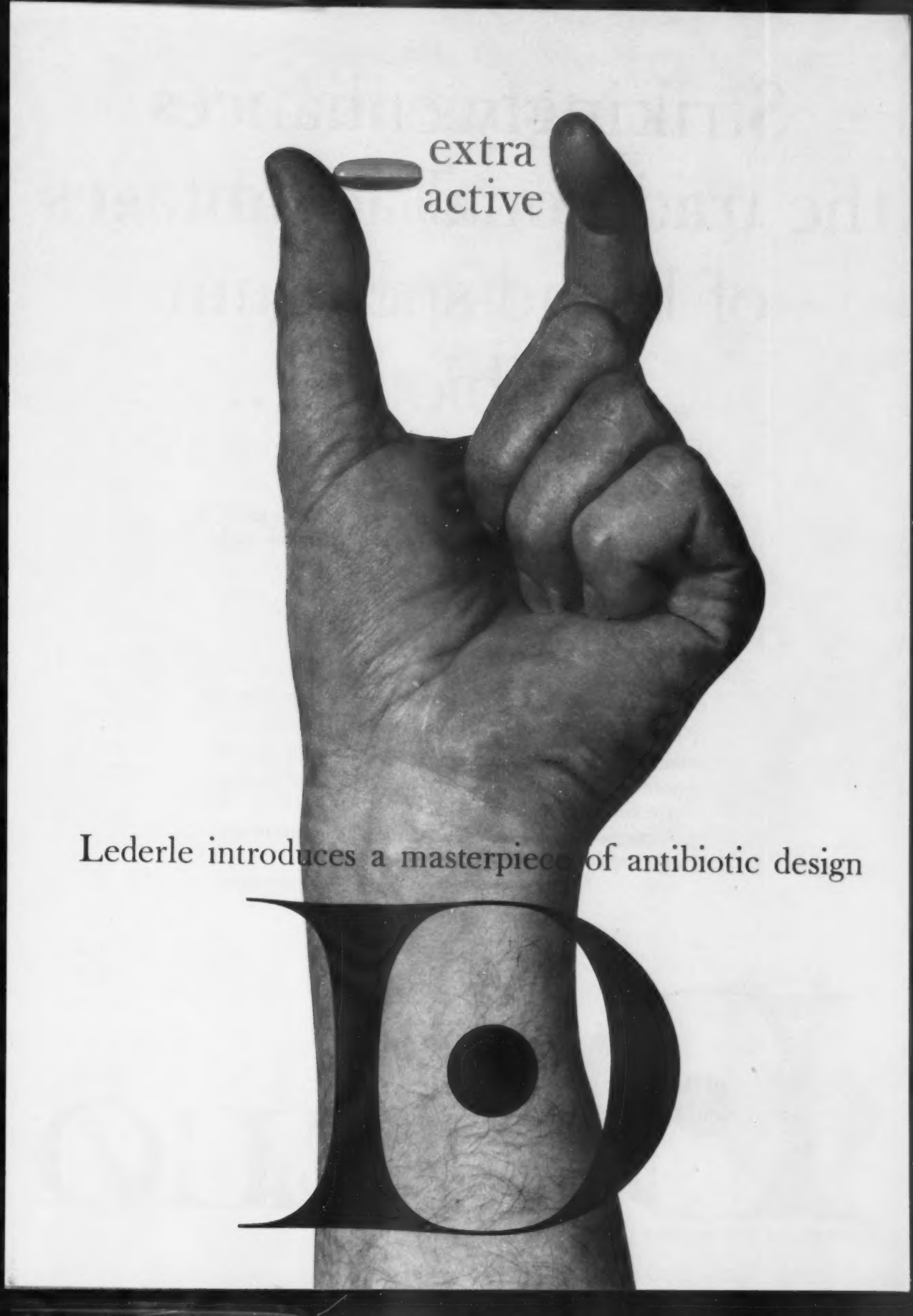


Lederle introduces a masterpiece of antibiotic design

Strikingly enhances the traditional advantages of broad-spectrum antibiotics...

for greater patient-physician benefit

DECLOMYCIN is a unique fermentation product of a strain of *Streptomyces aureofaciens*—the parent organism of AUREOMYCIN®* and ACHROMYCIN.®†

DECLOMYCIN singularly achieves:

- far greater antibiotic activity with far less drug
- greater stability in body media
- unrelenting peak activity throughout therapy
- "extra-day" protection through sustained activity

DECLOMYCIN retains:

- unsurpassed broad-spectrum range of activity
- rapid activity
- excellent toleration
- effectiveness against infection in nearly all organs or systems—rapid diffusion in body tissues and fluids

*Chlortetracycline Lederle †Tetracycline Lederle

DECLO

Demethylchlortetracycline Lederle

Far greater antibiotic activity with far less antibiotic

Milligram for Milligram, DECLOMYCIN exhibits 2 to 4 times the clinical potency (inhibitory action) of tetracycline against susceptible organisms. Thus, DECLOMYCIN has the advantage of providing significantly higher serum *activity* levels with significantly reduced drug intake.* [1,3,5]

Actually, DECLOMYCIN demonstrates the highest ratio of prolonged activity level to daily milligram intake of any known broad-spectrum antibiotic. Reduction of milligram intake of drug reduces hazards of related physical effect on intestinal mucosa or interaction with gastrointestinal contents.

*Activity level is a far more meaningful basis of comparison than quantitative blood levels, as Hirsch and Finland note. Action upon pathogens is the ultimate value.[1]

MYCIN

Unrelenting peak antimicrobial attack throughout therapy

The high level of DECLOMYCIN activity is uniquely sustained. It is not just an initial phenomenon but is constant—maintained on each day of treatment and between doses—without noticeable diminution of intensity. Peak-and-valley control is eliminated, favoring continuous suppression of pathogens and consequent improvement.

This DECLOMYCIN constant is achieved through remarkably greater stability in body fluids,[2,4,6] resistance to degradation[6] and a low rate of renal clearance[4,5]—all supporting antibiotic activity for extended periods.

DECLO

Demethylchlortetracycline Lederle

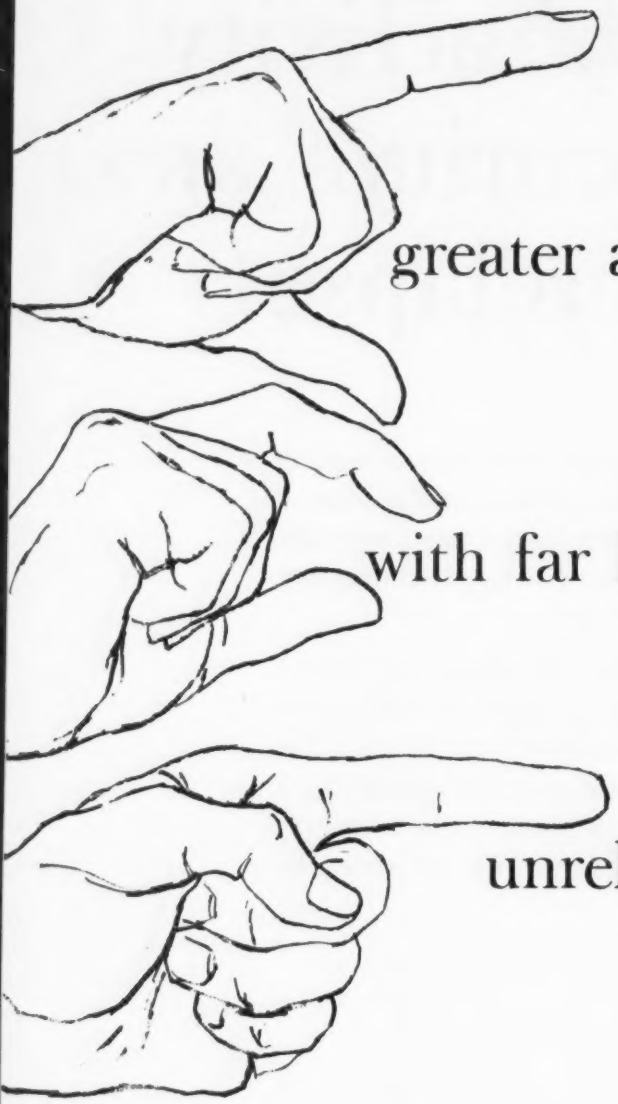
"Extra-day" activity for security against relapse

DECLOMYCIN maintains significant antibacterial activity for one to two days after discontinuance of dosage[1]—a major distinction from other antibiotics. Previous drugs have declined abruptly in activity following withdrawal.

DECLOMYCIN thus gives the patient an unusual degree of protection against resurgence of the primary infection, and against secondary infection... sequelae not infrequently encountered and often resembling a "resistance problem." Consequently, reinstitution of therapy or a change in therapy should rarely be necessary.

MYCIN

A masterpiece of



greater antibiotic activity

with far less antibiotic intake

unrelenting peak attack

—enhancing the unsurpassed features of tetracycline . . . for greater physician-patient benefits

DECLO

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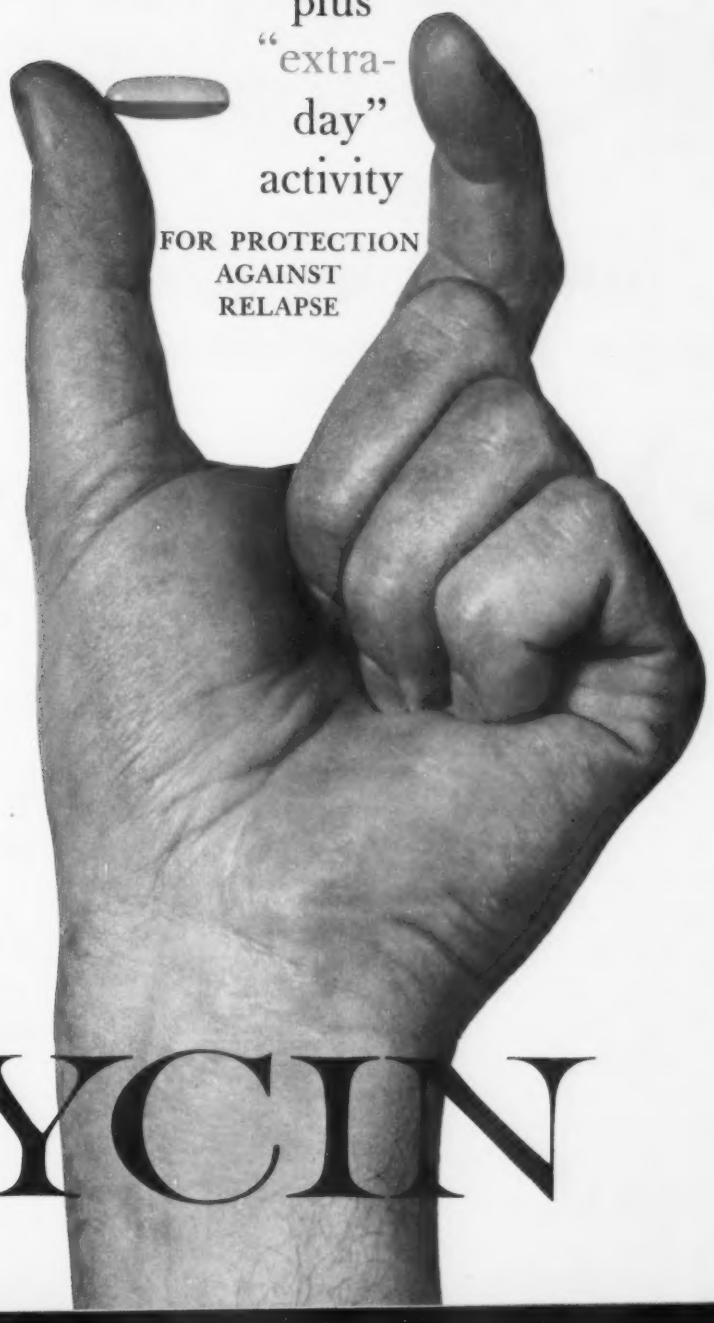
antibiotic design



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A major contribution of Lederle research

in the distinctive dry-filled duotone capsule

DECLOMYCIN®

Demethylchlortetracycline Lederle

immediately available as:

DECLOMYCIN Capsules, 150 mg.
Adult dosage: 1 capsule four times daily.

Rx

Declomycin Caps
150 mg.
Disp # XVI
Sig 1 cap q.i.d.

1. Hirsch, H. A., and Finland, M.: Antibacterial Activity Of Serum Of Normal Subjects After Oral Doses of Demethylchlortetracycline, Chlortetracycline and Oxytetracycline. *New England J. Med.* 260:1099 (May 28) 1959. 2. Hirsch, H. A., Kunin, C. M., and Finland, M.: Demethylchlortetracycline – A New And More Stable Tetracycline Antibiotic That Yields Greater and More Sustained Antibacterial Activity. To be published. 3. Lichter, E. A., and Sobel, S.: The Distribution Of Oral Demethylchlortetracycline In Healthy Volunteers And In Patients Under Treatment For Various Infections. To be published. 4. Kunin, C. M., Dornbush, A. C. and Finland, M.: Distribution And Excretion Of Four Tetracycline Analogues In Normal Young Men. To be published. 5. Kunin, C. M., and Finland, M.: Demethylchlortetracycline: New Tetracycline Antibiotic That Yields Greater and More Sustained Antibacterial Capacity. *New England J. Med.* 259:999 (Nov. 28) 1958. 6. Sweeney, W. M.; Hardy, S. M.; Dornbush, A. C., and Ruegsegger, J. M.: Demethylchlortetracycline: A Clinical Comparison of A New Antibiotic with Chlortetracycline and Tetracycline. *Antibiotics & Chemotherapy* 9:13 (Jan.) 1959.

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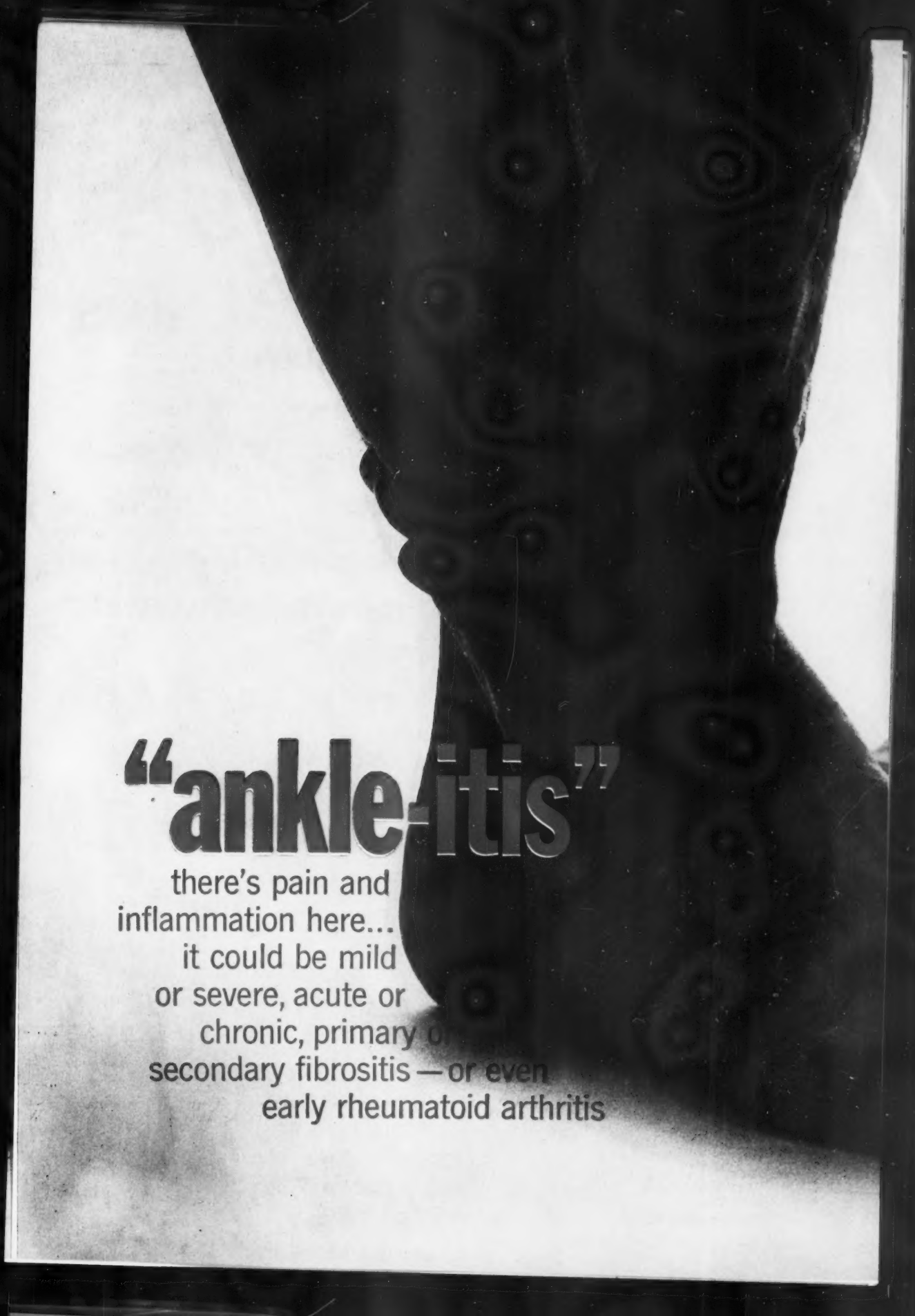
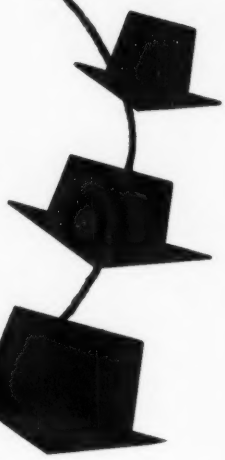

"ankle-itis"
there's pain and
inflammation here...
it could be mild
or severe, acute or
chronic, primary o
secondary fibrositis—or even
early rheumatoid arthritis

in

ALLERGIC RHINITIS

Family Physicians use



specific desensitization for

*lasting immunity

. . . easily, pleasantly and economically

SPECIFIC DESENSITIZATION . . .

is easily accomplished, quickly and accurately by any physician. Simply scratch test each patient by using activated Barry allergens to determine what offends the patient. Then send a list of these offenders with their reactions to Barry for the preparation of a specific desensitization formula which promotes *lasting active immunity*. For scratch testing your patients, request the specific assortment of activated allergens which may include foods, epidermals, dusts, fungi, bacteria or pollens. A brief history of your patient will permit us to select the assortment your patient requires. This is a safe, simple, time-proven technique and comes to you complete with directions for use by your nurse.

LASTING ACTIVE IMMUNITY . . .

is obtained by desensitizing your patient for the specific irritants to which your patient reacted by the scratch test. Each desensitization formula is individually prepared for each patient according to his own needs based upon the list of irritants that you supply and the degree of reaction for each. Specific desensitization against irritants such as foods, epidermals, dust, fungi, bacteria and pollens immediately *promotes active immunity* lasting longer than any other known medication. Each specific treatment is prepared in a three vial serial dilution set (20 doses) and includes a personalized treatment schedule indicating the correct interval to use between injections. For your patients that have already been skin tested by any means, simply send their list of offenders to the Allergy Division. Prompt 7-10 day service on all Rx's.

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more potent and comprehensive treatment than salicylate alone

. . . assured anti-inflammatory effect of low-dosage corticosteroid[1] . . . additive antirheumatic action of corticosteroid plus salicylate[2-5] brings rapid pain relief; aids restoration of function . . . wide range of application including the entire fibrositis syndrome as well as early or mild rheumatoid arthritis

more conservative and manageable than full-dosage corticosteroid therapy—

. . . much less likelihood of treatment-interrupting side effects[1-6] . . . reduces possibility of residual injury . . . simple, flexible dosage schedule

THERAPY SHOULD BE INDIVIDUALIZED

acute conditions: Two or three tablets four times daily. After desired response is obtained, gradually reduce daily dosage and then discontinue.

subacute or chronic conditions: Initially as above. When satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

precautions: Because SIGMAGEN contains prednisone, the same precautions and contraindications observed with this steroid apply also to the use of SIGMAGEN.

in any case it calls for

Sigmagen®

corticoid-salicylate compound tablets

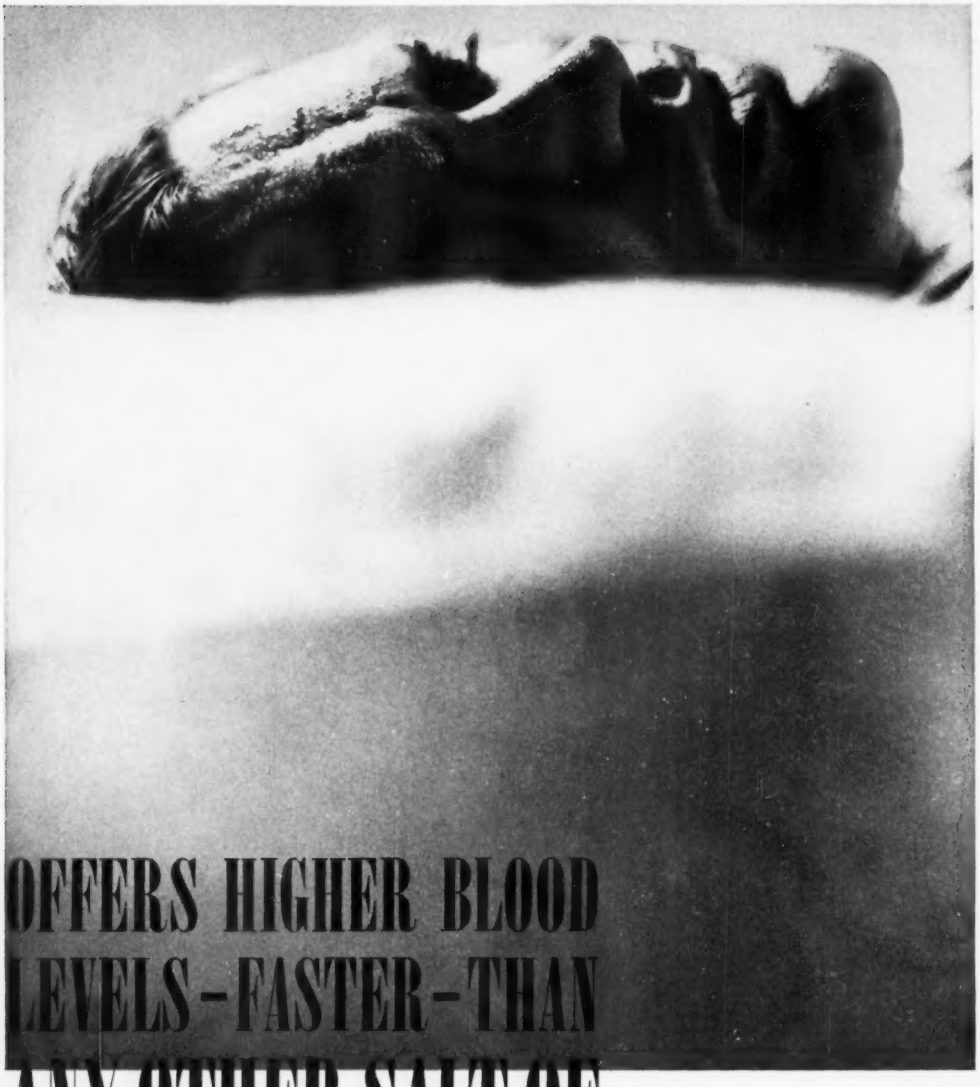
Composition

METICORTEN® (prednisone)	0.75 mg.
Acetylsalicylic acid	325 mg.
Aluminum hydroxide	75 mg.
Ascorbic acid	20 mg.

Packaging: SIGMAGEN Tablets, bottles of 100 and 1000.

References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

Schering



OFFERS HIGHER BLOOD LEVELS-FASTER-THAN ANY OTHER SALT OF ORAL PENICILLIN:

COMPOCILLIN®-VK

Potassium Penicillin V

® FILMTAB — FILM-SCALED TABLETS, ABBOTT, U.S. PAT. NO. 2881085

Supplied: Compocillin-VK Filmtabs, 125 mg. (200,000 units), bottles of 50 and 100; 250 mg. (400,000 units), bottles of 25 and 100. Compocillin-VK Granules for Oral Solution come in 40-cc. and 80-cc. bottles. When reconstituted, each 5-cc. teaspoonful represents 125 mg. (200,000 units) of potassium penicillin V.

ABBOTT

in tiny, easy-to-swallow Filmtabs® in tasty, cherry-flavored Oral Solution

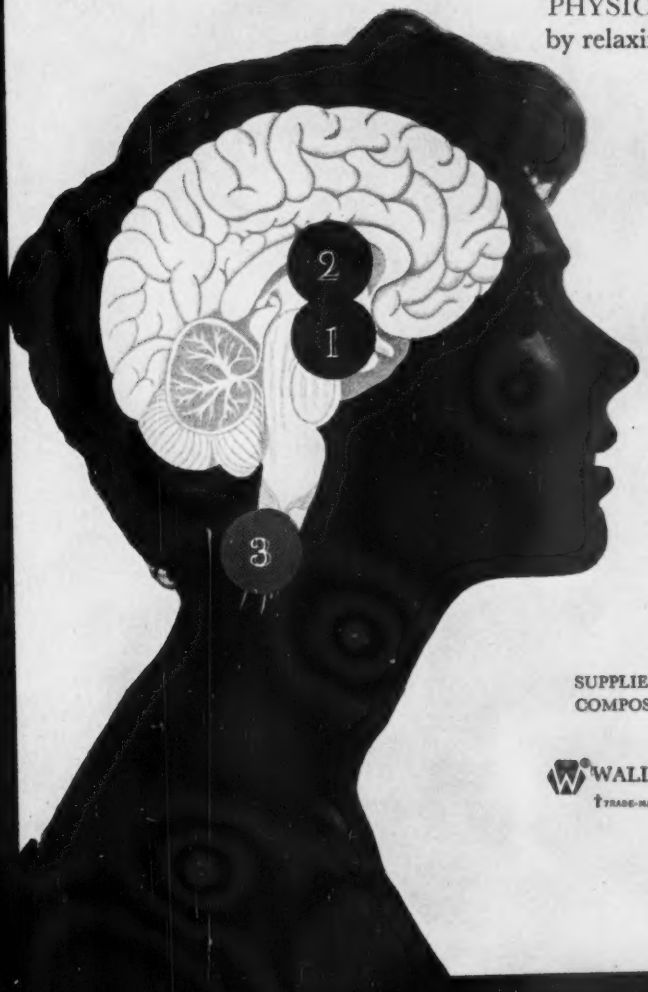
COMPREHENSIVE, THREE-LEVEL TREATMENT OF DEPRESSION

AND ASSOCIATED ANXIETY AND PHYSICAL TENSION

RELIEVES DEPRESSION
including symptoms such as crying, lethargy, loss of appetite, insomnia

RELIEVES ASSOCIATED ANXIETY
with no risk of drug-induced depression

RELIEVES ASSOCIATED PHYSICAL TENSION
by relaxing skeletal muscle



1
hypothalamus

2
thalamus and limbic system

3
spinal cord

▲Deprol▲†

benactyzine + meprobamate

- confirmed efficacy
- documented safety

SUPPLIED: Bottles of 50 light-pink, scored tablets
COMPOSITION: Each tablet contains 1 mg. benactyzine HCl and 400 mg. meprobamate

WALLACE LABORATORIES • *New Brunswick, N. J.*

†TRADE-MARK

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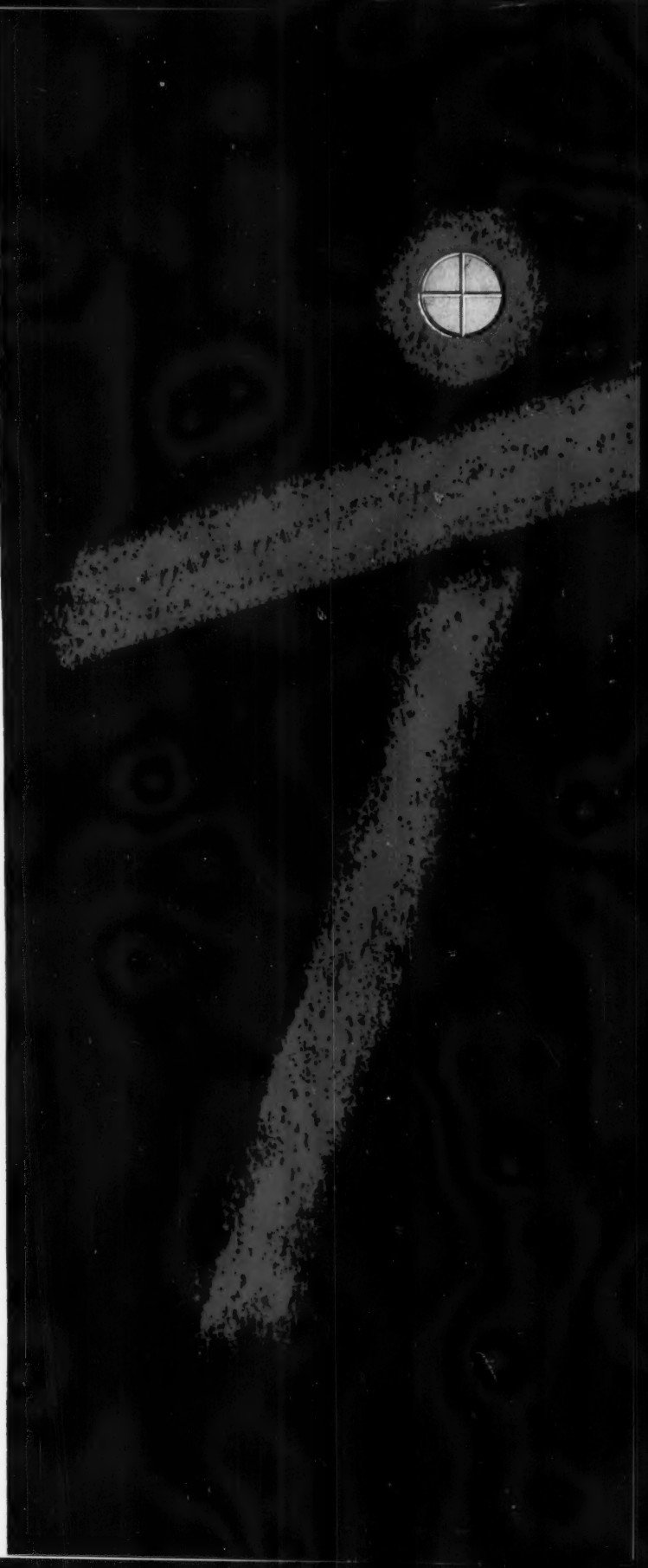
JUST ONE TABLET DAILY



provides therapeutic sulfa levels for 24 hours...
Highly soluble in acid and alkaline media... rapidly absorbed, producing fast, effective plasma-tissue concentrations sustained for the entire day. Simple, single 0.5 Gm. daily dose minimizes patient dosage confusion. At least equivalent to 4 to 6 Gms. daily of previous sulfonamides. Does not produce renal complications.[1]

with low incidence of sensitivity reactions...
KYNEX is extremely low in toxic potential.[2,3] Cutaneous or other objective sensitivity reactions are rare, as demonstrated in a large scale evaluation of clinical toxicity.[2] Also minor subjective reactions are less likely to develop when the recommended dosage is used.[2]

Dosage: Adults, 0.5 Gm. (1 tablet) daily following an initial first-day dose of 1 Gm. (2 tablets).

TABLETS, 0.5 Gm., Bottles of 24 and 100.

also available—KYNEX Acetyl Pediatric Suspension, cherry-flavored, 250 mg. sulfamethoxypyridazine activity per teaspoonful (5 cc.). Bottles of 4 and 16 fl. oz.

1. Editorial, New England J. Med. 258:48, 1958.
2. Vinnicombe, J.: Antibiotic Med & Clin. Ther. 5:474, 1958.
3. Sheth, U. K., et al.: Ibid., p. 604, 1958.

for improved control
WHENEVER SULFAS ARE INDICATED

KYNEX®

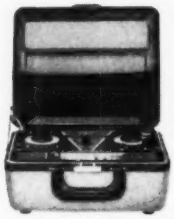
Sulfamethoxypyridazine Lederle

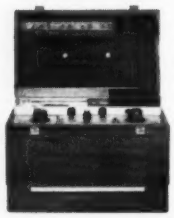
Lederle **LEDERLE LABORATORIES,** a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

accent on versatility

accent on portability

one plus one equals two





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Both produce permanent, easily interpreted, diagnostically accurate electrocardiograms. Both are simple to operate . . . and both will give stable, trouble-free operation year after year. But there are also these important differences: in the 18-pound Visette, every *practical* means is used to achieve the combination of extremely light weight, brief case size and "traveling" ruggedness. In the new 100 Viso for office use, where instrument portability is not a prime requirement, the design includes such additional features as *two* recording speeds, *three* recording sensitivities, provision for recording *other* waveforms, and *visual monitoring* by an external oscilloscope.

Each of these companion 'cardiographs has individual emphasis in terms of *portability* and *versatility*. But both equally reflect the best principles of modern diagnostic instrument design.

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Model 300 Visette, 625 dollars.
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Delivered prices, continental U. S. A.

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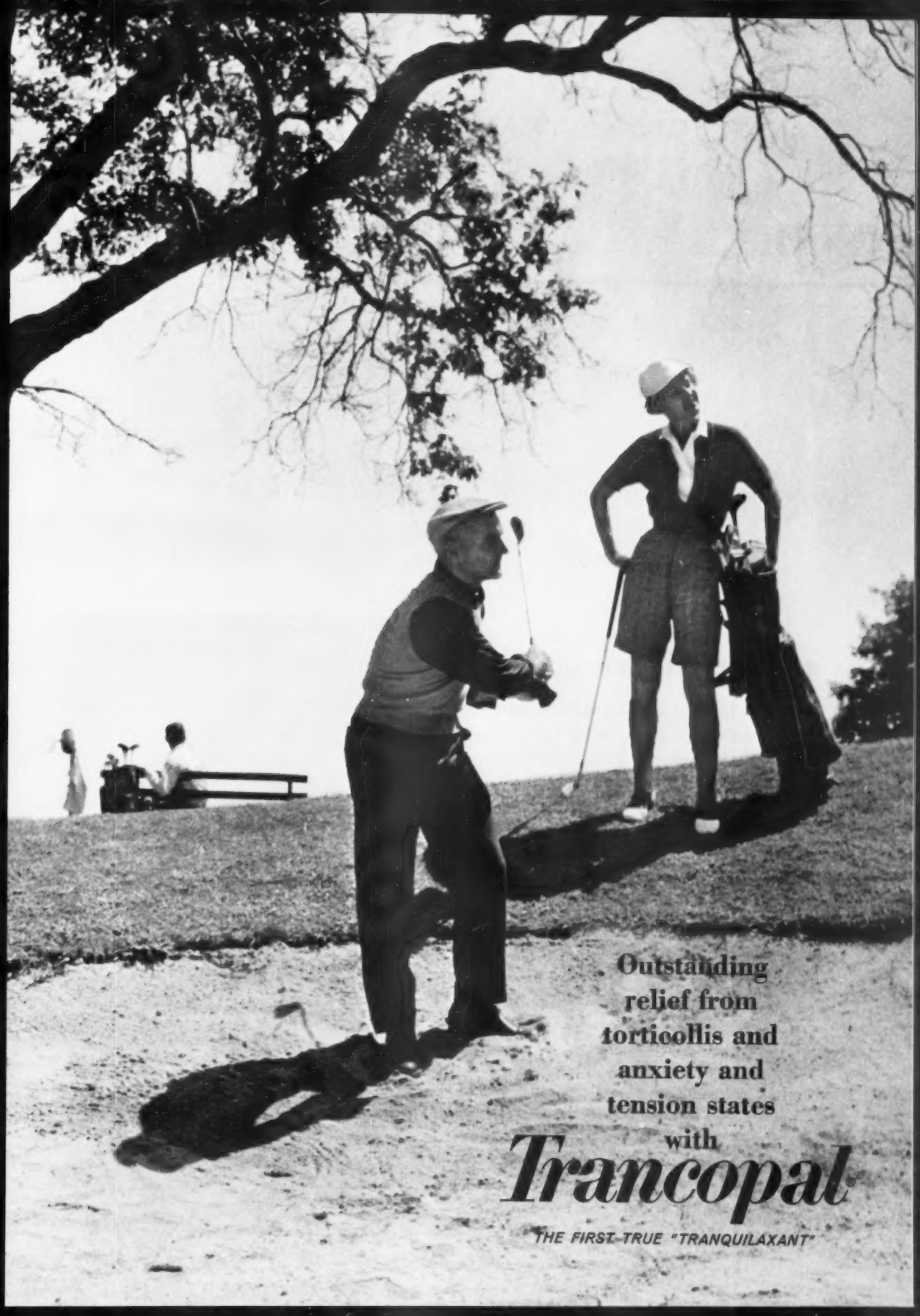
Outstanding
relief from
torticollis and
anxiety and
tension states
with
Trancopal
THE FIRST TRUE "TRANQUILAXANT"

Here is what you can expect when you prescribe

case profile no. 2840*

A 55-year-old man complained of a painful, very stiff neck on the left side. There was marked muscle spasm that seemed to involve primarily the trapezius muscle. He had a severe headache, with the pain radiating down the left side of the neck to the shoulder. There were no other findings on physical examination and results of routine laboratory tests were normal.

Trancopal was prescribed in a dosage of 200 mg. q.i.d. The first and second dose of Trancopal gave only moderate relief. However, after the third dose, there was marked relief of the stiffness of the neck, as well as the headache and shoulder pain.

After the fourth dose, medication was gradually decreased and was discontinued on the sixth day. One week later, the patient had moderate recurrence of the torticollis, and Trancopal was again prescribed in doses of 200 mg. q.i.d. The patient obtained complete relief in one day and no further treatment was required.

for torticollis

THE FIRST TRUE "TRANQUILAXANT"

Trancopal®

for anxiety and tension states

case profile no. 3382*

A 35-year-old woman, a professional model, had an acute, severe attack of anxiety. She was irrational and unable to eat, and was very restless.

Initial medication consisted of aspirin with codeine and later meprobamate. Neither was effective, and the patient's condition became worse. She had to be hospitalized because of the marked anxiety. Trancopal was then prescribed in a dosage of 200 mg. q.i.d., in addition to bed rest.

After the second dose of 200 mg. of Trancopal, the patient became calm and rational, and was able to eat. The dosage of Trancopal was gradually reduced to 100 mg. q.i.d. on the fourth hospital day, after which the patient was discharged and was able to return to her normal occupation.

**Clinical Reports on file at the Department of Medical Research, Winthrop Laboratories.*

Turn page for complete listings of Indications and Dosage.

THE FIRST TRUE "TRANQUILAXANT"

Trancopal

potent MUSCLE RELAXANT
effective TRANQUILIZER

Indications:

Musculoskeletal[1]	Psychogenic[1]
Neck pain (torticollis, etc.)	Anxiety and tension states
Low back pain (lumbago, etc.)	Dysmenorrhea
Bursitis	Premenstrual tension
Rheumatoid arthritis	Asthma
Osteoarthritis	Angina pectoris
Disc syndrome	Alcoholism
Fibrositis	
Ankle sprain, tennis elbow, etc.	
Myositis	
Postoperative muscle spasm	

Dosage: Adults, 100 or 200 mg. orally three or four times daily. Relief of symptoms occurs in fifteen to thirty minutes and lasts from four to six hours. The higher dosage is recommended for the treatment of patients in the acute stages of painful musculospastic conditions, and anxiety and tension states. Children (5 to 12 yrs.), 50 mg. three or four times daily.

Supply:

Trancopal Caplets®
100 mg. (peach colored, scored), bottles of 100.

New strength ▶

Trancopal Caplets
200 mg. (green colored, scored), bottles of 100.

"Chlormethazanone [Trancopal] not only relieved painful muscle spasm, but allowed the patients to resume their normal activities with no interference in performance of either manual or intellectual tasks."[2]

"The effect of this preparation in these cases [skeletal muscle spasm] was excellent and prompt . . ."[3]

". . . Trancopal is a most valuable drug for relieving tension, apprehension and various psychogenic states."[4]

1. Collective Study, Department of Medical Research, Winthrop Laboratories.
2. Lichtman, A. L. (N.Y. Polyclinic M. Sch. & Hosp.): Kentucky Acad. Gen. Pract. J. 4:28, Oct., 1958.
3. Mullin, W. G., and Epifano, Leonard (Long Island College Hosp.): Am. Pract. & Digest Treat. To be published.
4. Ganz, S. E. (New York, N. Y.): J. Indiana M. A. 52:1134, July, 1959.

Winthrop LABORATORIES
New York 18, New York

Trancopal (brand of chlormezanone) and Caplets, trademarks reg. U.S. Pat. Off. Printed in U.S.A. 9-59 (1400M)

whenever there is inflammation, swelling, pain

VARIDASE®

STREPTOKINASE STREPTODORNASE LEDERLE

BUCCAL *Tablets*

conditions for a fast comeback...

as in acute hemorrhoids...

SUNDAY, 9 A.M.: VARIDASE for painful thrombotic hemorrhoid. 2:30 P.M.: pain greatly reduced, less swelling and inflammation.

MONDAY: size down to small tab; acute inflammation disappeared.*

VARIDASE activates natural fibrinolytic factors, to limit undesirable inflammatory response and speed healing.

Dramatic reduction of pain is often the first sign of improvement: swelling and redness rapidly diminish. Drugs and natural regenerative factors readily penetrate the inflammatory barrier to effect total remission faster... in trauma or infection.

VARIDASE Buccal Tablets contain:
10,000 Units Streptokinase, 2,500 Units Streptodornase.
Supplied: Boxes of 24 and 100 tablets

*Peterman, R. A.: Clinical report cited with permission.

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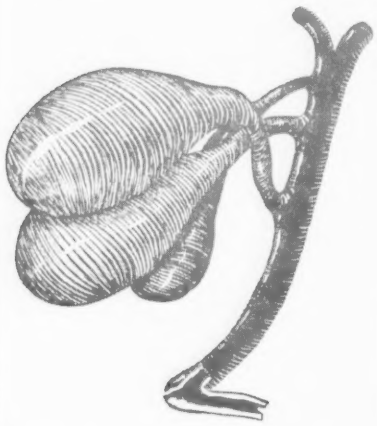
HOW PREVALENT ARE MULTIPLE GALLBLADDER ANOMALIES?

One hundred and twenty-two cases of *vesica fellea divisa* (bilobed gallbladder) and *vesica fellea duplex* (double gallbladder with 2 cystic ducts) are reported in the literature. A unique case of *vesica fellea triplex* has recently been described.

Source: Skilboe, B.: Am. J. Clin. Path. *30*:252, 1958.



in medical management and postoperative care of biliary disorders...

"effective" hydrocholeresis...

DECHOLIN®

(dehydrocholic acid, AMES)

"...dehydrocholic acid...does considerably increase the volume output of a bile of relatively high water content and low viscosity. This drug is therefore a good 'flusher,' and is effectively used in treating both the chronic unoperated patient and the patient who has a T-tube drainage of an infected common bile duct."[1]

free-flowing bile
plus reliable spasmolysis

DECHOLIN® WITH BELLADONNA

"...DECHOLIN/Belladonna in a dosage of one tablet t.i.d. for a period of two to three months may prove helpful in relieving postoperative symptoms, aiding the digestion, and facilitating elimination."[2]

(1) Beckman, H.: Drugs: Their Nature, Action and Use, Philadelphia, W. B. Saunders Company, 1958, p. 425.
(2) Biliary Tract Diseases, M. Times *85*:1081, 1957.

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For the first time

CONVENIENCE and ECONOMY

for that all-important first dose of broad-spectrum antibiotic therapy

New

TERRAMYCIN®

brand of oxytetracycline

INTRAMUSCULAR SOLUTION

Initiation of therapy in *minutes after diagnosis* with new, ready-to-inject Terramycin Intramuscular Solution provides maximum, sustained absorption of potent broad-spectrum activity.

...and for continued, compatible, coordinated therapy

COSA-TERRAMYCIN®

oxytetracycline with glucosamine

CAPSULES

Continuation with oral Cosa-Terramycin every six hours will provide highly effective antibacterial serum and tissue levels for prompt infection control.

The unsurpassed record of clinical effectiveness and safety established for Terramycin is your guide to successful antibiotic therapy.

Supply:

*Terramycin Intramuscular Solution**
100 mg./2 cc. ampules
250 mg./2 cc. ampules

Cosa-Terramycin Capsules
125 mg. and 250 mg.

Cosa-Terramycin is also available as:
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Cosa-Terramycin Pediatric Drops – peach flavored, 5 mg./drop (100 mg./cc.), 10 cc. bottle with plastic calibrated dropper

Complete information on Terramycin Intramuscular Solution and Cosa-Terramycin oral forms is available through your Pfizer Representative or the Medical Department, Pfizer Laboratories.

*Contains 2% Xylocaine® (lidocaine), trademark of Astra Pharmaceutical Products, Inc.

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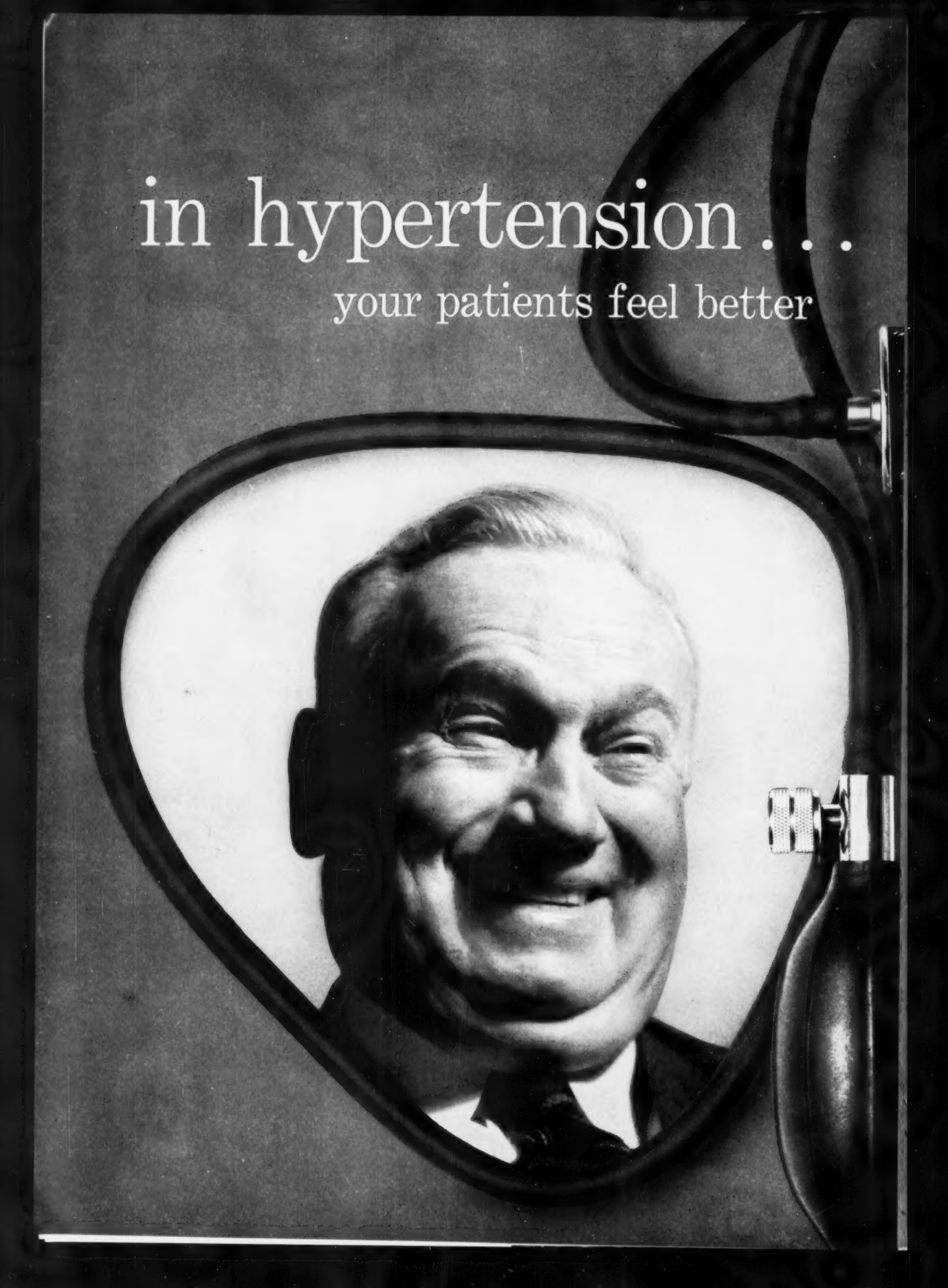
in hypertension . . .
your patients feel better

and
blood pressure
is controlled
safely and
effectively

The hypertensive under treatment is frequently burdened with side effects of therapy including states of depression, fatigue, and lethargy. He finds little joy left in his life and laughter is almost a forgotten experience.

With RAUTENSIN and RAUVERA, two unique and dependable antihypertensive agents, patients feel better, have a brighter outlook and blood pressure is safely reduced.

in mild hypertension

RAUTENSIN provides smoother antihypertensive action with no sudden rebounds or abrupt declines, and can be given over long periods of time without impairing mental alertness, producing excessive lethargy or drowsiness. When tachycardia is present, RAUTENSIN slows heart rate 10 to 15 per cent. RAUTENSIN is less likely to cause mental depression.[1] The apprehensive hypertensive is calmed, yet side actions are " . . . either completely absent or so mild as to be inconsequential."[2]

RAUTENSIN®

each tablet contains 2 mg. of the purified alseroxylon complex of Rauwolfia serpentina

Dosage: For the first 20 to 30 days, 2 tablets (4 mg.) once daily, at bedtime. Thereafter, a maintenance dose of 1 tablet (2 mg.) daily will suffice for most patients.

in moderate to severe hypertension

RAUVERA produces smooth and steady antihypertensive action which persists over the entire twenty-four hours without peaks and valleys . . . no "saw tooth" effect. Patients show a marked subjective as well as objective improvement with a significant drop in blood pressure, yet with a very low incidence of side effects.[3] Abrupt rise in blood pressure does not occur even when therapy is interrupted.[4] Tolerance does not develop on prolonged administration. Sensitization reactions or postural hypotension do not occur. Headaches, fatigue, insomnia and "heart consciousness" rapidly disappear, leaving the patient feeling well and asymptomatic.

RAUVERA®

each tablet contains 1 mg. of purified alseroxylon complex of Rauwolfia serpentina and 3 mg. alkavervir (Veratrum viride fraction)

Dosage: One tablet 3 or 4 times daily, ideally after meals, at intervals of not less than 4 hours.

1. Moyer, J. H.; Dennis, E., and Ford, R.: Arch. Int. Med. *96*:530, 1955.
2. Terman, L. A.: Illinois M. J. *3*:67, 1957.
3. La Barbera, J. F.: M. Rec. & Ann. *50*:242, 1956.
4. Bendig, A.: New York J. Med. *66*:2523, 1956.

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meprobamate with PATHILON® tridihexethyl chloride Lederle

for relieving tension and curbing hypermotility and excessive secretion in G. I. disorders

PATHIBAMATE combines two highly effective and well-tolerated therapeutic agents:

meprobamate (400 mg. or 200 mg.)—a tranquilizer and muscle-relaxant widely accepted for the effective management of tension and anxiety

PATHILON (25 mg.)—an anticholinergic long noted for producing prompt symptomatic relief through peripheral, atropine-like action, yet with few side effects

now available...

PATHIBAMATE-200 Tablets

200 mg. meprobamate • 25 mg. PATHILON

for more flexible control of G. I. trauma and tension smooth, sugar-coated, easy-to-swallow

PATHIBAMATE-400 and PATHIBAMATE-200 are indicated for duodenal ulcer; gastric ulcer; intestinal colic; spastic and irritable colon; ileitis; esophageal spasm; anxiety neurosis with gastrointestinal symptoms and gastric hypermotility.

Supplied: PATHIBAMATE-400—Each tablet (yellow, 1/2-scored) contains meprobamate, 400 mg.; PATHILON tridihexethyl chloride 25 mg.

PATHIBAMATE-200—Each tablet (yellow, coated) contains meprobamate, 200 mg.; PATHILON tridihexethyl chloride, 25 mg.

Administration and Dosage: PATHIBAMATE-400—1 tablet three times a day at mealtime and 2 tablets at bedtime.

PATHIBAMATE-200—1 or 2 tablets three times a day at mealtime and 2 tablets at bedtime.

Adjust dosage to patient response.

Contraindications: glaucoma; pyloric obstruction, and obstruction of the urinary bladder neck.

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AMA Washington Letter

THE MONTH IN WASHINGTON

Congress this year failed to take final action on any legislation of major interest to the medical profession except for the annual appropriation for medical research.

However, work was started on three measures of particular concern to physicians—the Forand, Keogh-Simpson and International Health Research bills. Showdown votes on them are probable next year. If there are no votes next year, they will die and must be reintroduced in 1961 if the subject is to be considered further by Congress.

The House Ways and Means Committee held hearings on the Forand bill, but deferred showdown voting on it until next year. The legislation —which is vigorously opposed by the medical profession, other groups on the health team and the Eisenhower Administration—would provide hospital, surgical and nursing home care for federal Social Security beneficiaries. Social Security taxes would be raised to help finance the expensive program.

The Keogh-Simpson bill, after being approved by the House, was left hanging in the Senate Finance Committee. The Senate committee held two sets of hearings. It could vote early next year on the legislation which would grant income tax deferrals to physicians and other self-employed persons as an incentive to invest in private pension plans.

Chairman Oren Harris (D., Ark.) postponed until next session a vote by the House Commerce Committee on the Senate-approved international medical research bill because of a backlog of more urgent measures requiring committee action this year. He said that "a diligent effort" would be made during the recess to clarify a number of points at issue revealed in testimony before his committee.

The bill calls for an annual $50 million authorization to finance a new national institute of health to foster international medical research programs and co-operation. The Administration opposes some of its provisions.

President Eisenhower and Arthur S. Flemming, Secretary of Health, Education and Welfare, made clear that they didn't feel bound to spend the additional $106 million which Congress voted for medical research. Congress raised the $294 million requested by the President to $400 million.

Mr. Eisenhower expressed concern that Congress is going too fast in providing medical research funds which are administered by the National Institutes of Health. He warned of a danger that the quality of research projects might be lowered and that manpower and other resources might be diverted from "equally vital teaching and medical practice."

He directed that every project approved must be "of such great promise that its deferment would be likely to delay progress in medical discovery."

Secretary Flemming said that the President's criteria would be followed conscientiously. But the Secretary gave assurance that the restrictions would not be so rigid as to hamper research by denying funds for worthwhile projects.

One of the most important and surprising developments during this session of Congress was the political power shown by Mr. Eisenhower, a lame-duck Republican president, in generally calling the shots on legislation although Democrats controlled the House and Senate with substantial majorities.

In his fight against "big spending" measures sponsored by Democrats, the President effectively used his veto power to get the bills more to his liking. The Democrats were unable to muster the votes to override vetoes of two housing bills.

A third compromise housing bill retained three provisions of interest to the medical profession. One would provide Federal Housing Administration loan guarantees for building proprietary nursing homes. A second would provide FHA loan guarantees and direct loans for housing for elderly persons. The third would authorize loans for construction of housing for interns and nurses.

* * *

Primary responsibility for radiation health safety has been transferred from the Atomic Energy Commission to the Department of Health, Education and Welfare.

Such a shift in responsibility was called for in legislation pending in Congress but President Eisenhower ordered the transfer without Congressional action.

The President directed HEW to "intensify its radiological health efforts and have primary responsibility . . . for the collation, analysis and interpretation of data on environmental radiation levels such as natural background, radiography, medical and industrial uses of isotopes and x-rays and fall-out."

HEW Secretary Flemming also was named chairman of a cabinet-level Federal Radiation Council.

. . . and one to grow on

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Also available as a pleasant-tasting cherry-flavored elixir (5 mcg. per 5-cc. teaspoonful) and as REDISOL injectable, cyanocobalamin injection USP (30 and 100 mcg. per cc., 10-cc. vials and 1000 mcg. per cc. in 1, 5 and 10-cc. vials).

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PR REPORT

MSMS Has Successful Legislative Season; No Let-Up Seen in Future

This year the talk in the legislative halls in Lansing was about taxes.

Little else mattered for seven and a half months as both political parties fought to gain support for their own tax philosophies. In the end, the income tax scheme was defeated, and the penny increase in the use tax (sales tax) was adopted, coupled with a slight alteration of the business activities tax. As passed, the tax package received the general approval of the medical profession.

There is some doubt as to the constitutionality of the use tax measure at this writing and this question is now being appealed to the Michigan Supreme Court. Since the use tax increase provides the bulk of the 128½ millions of new revenue, a substitute tax plan would have to be developed if the court tosses it out.

In spite of their preoccupation with fiscal problems, lawmakers this year introduced 134 bills which dealt with problems of health, and were therefore of concern to the medical profession.

Some were "repeaters" of past years, covering a variety of subjects such as atomic energy control, polio vaccine, tuberculosis hospitals and drunk drivers. Some were new, affecting ambulance regulations, commitment of the mentally ill and denturologists.

On the national scene, the Congress declined to pass either the Forand Bill, which would provide hospital and other health care to Social Security recipients, or the Simpson-Keogh Bill, which would grant tax equity to self-employed persons who establish their own retirement programs, although this latter bill did manage to pass one house this year.

All signs indicate that next year will be very crucial for both of these measures and it is expected that state medical societies and the AMA will be extremely active on both these particular bills.

Mounting interest of physicians in legislative affairs this year is indicated by the increasing number of delegations of doctors that visit Lansing and Washington to meet with their home-town Legislators. Particularly on the state level has this rapport between the lawmaker and his doctor-constituent been strengthened.

Annual Registration Effective Next Year

Beginning next January, Michigan M.D.'s will begin paying an annual registration fee to the Board of Registration in Medicine. Following recommendations of the 1957 House of Delegates, the Legislature set the yearly levy at $5.00, reduced to $30.00 the present $50.00 charge made to new doctors taking their initial Board examinations prior to entering practice, and eliminated the present registration of doctors with county clerks.

Similar bills have been introduced in the past three years, but not until this year have mounting administrative costs of the Board, coupled with static revenues, forced adoption of the law. Legislators assured MSMS that the $5.00 figure was adequate and that they foresee no need for increasing it in the predictable future.

Registration will be directly with the Board and will be required of all doctors in practice in the state, whether they are members of MSMS or not.

Non-Citizen Physicians Gain Private Practice Privileges

An easing in the shortage of doctors is in prospect with passage this year of a bill granting the Board of Registration in Medicine some discretion in licensing "foreign" doctors.

Until now, immigrant doctors from other countries could not enter private practice in this state until they became United States citizens. They were limited to practice on the staff of a hospital, for a maximum of five years.

Effective immediately under the new law however, a non-citizen may apply for an annually renewable one-year license to practice, provided he (1) has graduated from a school or university approved by the Board, (2) has agreed to apply for and accept U. S. citizenship, (3) has completed one year of rotating internship in an approved hospital in the state, and (4) passes the Board examinations.

Pamphlet of the Month

For your reception room this month, Doctor, the Public Relations Library offers "Are You Fit to Drive?", an AMA pamphlet which discusses physical reasons why a person should not drive an automobile and encourages the patient to discuss this problem with his physician.

To obtain free copies, write MSMS Public Relations Library, P.O. Box 539, Lansing 3, Michigan.

Sidney E. Chapin, M.D., Chairman of the Wayne County Medical Society PR Committee, and Everette Gustafson, M.D., Chairman of the Oakland County Medical Society PR Committee, demonstrate office equipment to an exhibit visitor.

MSMS Exhibits At Michigan State Fair

A fair within a fair was held in Detroit at the Michigan State Fair when an entire building was devoted to health exhibits.

During the week of September 7, more than 800,000 persons trouped through the huge Fairgrounds at the corner of Woodward and Eight Mile Road.

The State Fair management was especially pleased with the high interest shown in the Health Exhibits. This was the first year that all health-medical displays were consolidated under one roof.

The MSMS exhibit extended for 35 feet and incorporated many of the pieces of equipment used in an M.D.'s office. On hand were doctors from Wayne, Oakland and Macomb counties to demonstrate the machines and devices. Also assisting were members of the Wayne Auxiliary and the Michigan State Medical Assistants Society. More than 200 volunteers contributed their services.

Crowds jammed the MSMS exhibit at the Michigan State Fair.

The MSMS exhibit included a large "Your Body" display from the American Medical Association. Shown with the AMA public information exhibit are E. S. Maxim, M.D., representing the Macomb County Medical Society; Mrs. James Gilliam, Detroit Medical Society Auxiliary, and Mrs. J. Whitlock Gordon, Wayne County Auxiliary.

Mrs. Earl E. Weston, center, president of the Wayne Auxiliary, discusses her duties at the MSMS exhibit with two members of the Detroit Medical Society Auxiliary, Mrs. Malcolm West, and Mrs. Addison Prince. More than 200 volunteer workers helped to staff the popular exhibit.

Open To All Physicians . . .

1959 Symposia

OKLAHOMA CITY, OKLAHOMA
Fri., Oct. 2, 1959, The Skirvin Hotel

BIRMINGHAM, ALABAMA
Sun., Oct. 11, 1959, The Dinkler-Tutwiler Hotel

TACOMA, WASHINGTON
Wed., Oct. 14, 1959, The Hotel Winthrop

TRAVERSE CITY, MICHIGAN
Fri., Oct. 23, 1959, The Park Place Hotel

LUBBOCK, TEXAS
Sat., Oct. 31, 1959, The Lubbock Country Club

ST. CHARLES, ILLINOIS
Wed., Nov. 4, 1959, The St. Charles Country Club

DALLAS, TEXAS
Fri., Nov. 6, 1959, The Hilton Hotel

WICHITA, KANSAS
Sat., Nov. 7, 1959, The Hotel Broadview

SCHENECTADY, NEW YORK
Thurs., Nov. 12, 1959, The Mohawk Golf Club

CORPUS CHRISTI, TEXAS
Fri., Nov. 13, 1959, The Robert Driscoll Hotel

RIVERSIDE, CALIFORNIA
Sun., Nov. 15, 1959, The Mission Inn

SANTA BARBARA, CALIFORNIA
Wed., Nov. 18, 1959, The Santa Barbara Biltmore

MOLINE, ILLINOIS
Wed., Dec. 2, 1959, The LeClaire Hotel

1960 Symposia (incomplete schedule)

DENVER, COLORADO
Sun., Jan. 10, 1960, The Cosmopolitan Hotel

AUSTIN, TEXAS
Fri., Jan. 15, 1960, The Commodore Perry

POCATELLO, IDAHO
Sat., April 2, 1960, The Bannock Hotel

MOORHEAD, MINNESOTA
Sat., April 9, 1960, The Frederick Martin Hotel

SALT LAKE CITY, UTAH
Fri., April 22, 1960, Hotel Utah

ST. LOUIS, MISSOURI
Sun., May 1, 1960, Chase-Park Plaza

SANTA ROSA, CALIFORNIA
Fri., Sept. 16, 1960, The Flamingo Hotel

GREAT FALLS, MONTANA
Sat., Oct. 22, 1960, The Rainbow Hotel

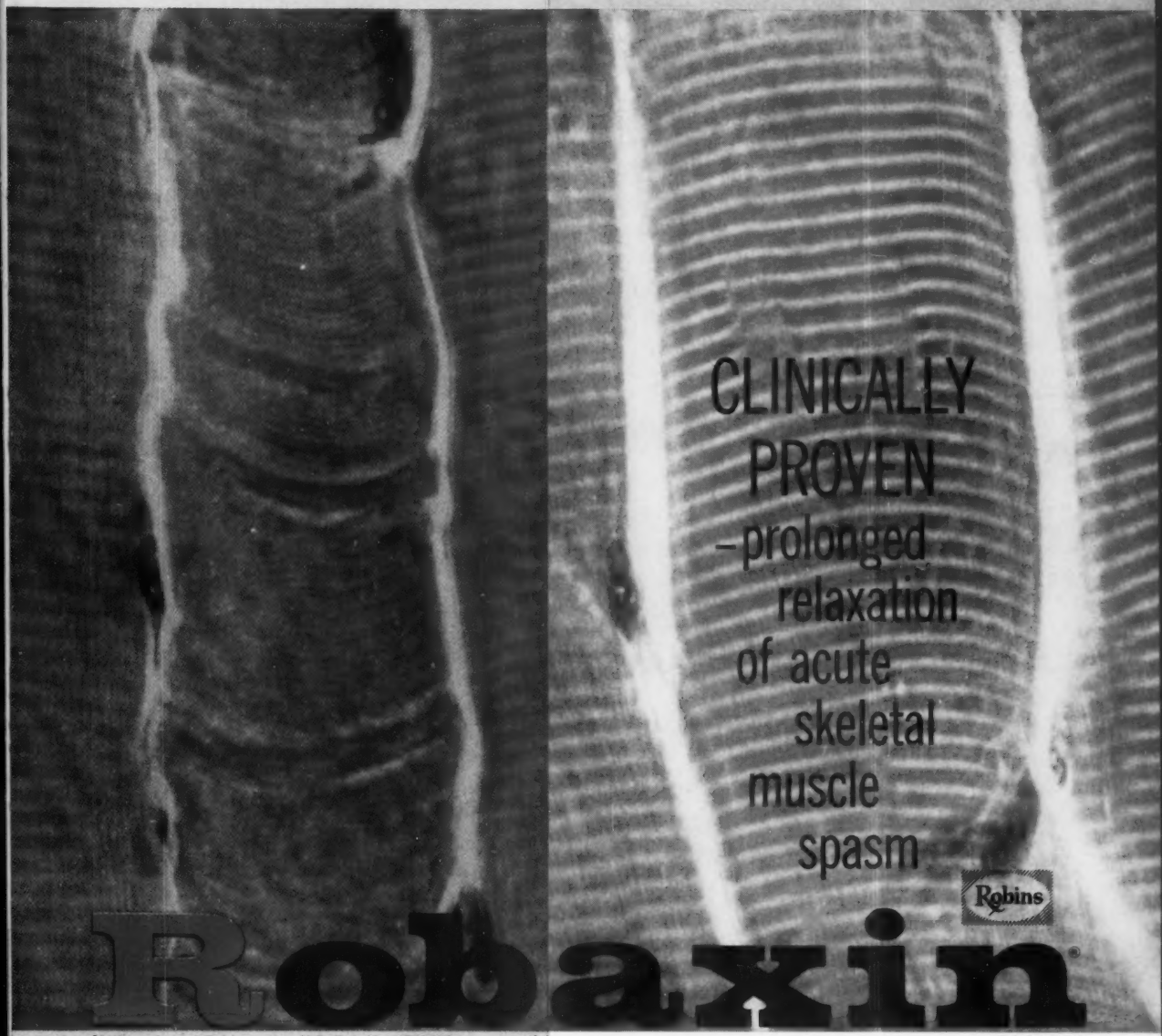
CHARLESTON, WEST VIRGINIA
Sun., Oct. 30, 1960, The Daniel Boone Hotel

In cooperation with medical organizations throughout the United States, Lederle continues to offer aid to post-graduate medical education through its Symposium program. Upon completion of the schedule above the number of Symposia presented will exceed 200 since the first meeting, sponsored by the Knoxville (Tenn.) Academy of Medicine eight years ago. Each meeting presents prominent authorities discussing important advances in clinical medicine and surgery. Activities are also planned for physicians' wives.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York Lederle

Fiber of skeletal muscle in spasm

Fiber of skeletal muscle relaxed *(photomicrographs)*



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TABLETS

Summary of six published clinical studies:

ROBAXIN BENEFICIAL IN 92.4% OF SKELETAL MUSCLE SPASM CASES

	NO. PATIENTS	RESPONSE			
		"marked"	moderate	slight	none
Carpenter[1]	33	26	6	1	—
		"pronounced"			
Forsyth[2]	58	37	20	—	1
		"good"			
Lewis[3]	38	25	6	—	7
O'Doherty & Shields[4]	17	"excellent" 14	2	1	0
		"significant"			
Park[5]	30	27	—	2	1
		"gratifying"			
Plumb[6]	60	55	—	—	5
TOTALS	236	184 (78.0%)	34 (14.4%)	4	14

- **Highly potent—and long acting.**[1,2,3]
- **Relatively free of adverse side effects.**[1,2,3,5,6]
- **In ordinary dosage, does not reduce muscle strength or reflex activity.**[1]

REFERENCES: 1. Carpenter, E. B.: Southern M. J. 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Lewis, W. B.: California Med. 90:26, 1959. 4. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 5. Park, H. W.: J.A.M.A. 167:168, 1958. 6. Plumb, C. S.: Journal-Lancet 78:531, 1958.

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More than 13,000,000 prescriptions attest that Veratrite continues to be the antihypertensive of choice for the older hypertensive patient. Veratrite can be prescribed safely and routinely for those who usually cannot tolerate more potent drugs.

Veratrite now contains cryptenamine which acts centrally to produce a gradual fall in blood pressure, yet improves circulation to vital organs, relieves dizziness and headache, and imparts a distinct sense of well-being. Furthermore, Veratrite achieves its effects with unusual safety and without annoying side effects.

Each Veratrite tabule contains: Cryptenamine (tannates), 40 C.S.R.* Units; Sodium nitrite, 1 gr.; Phenobarbital, ¼ gr. Dosage: 1–2 tabules t.i.d., preferably 2 hours after meals.

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decongestant • antihistaminic
analgesic • antipyretic | ORAL

CORICIDIN "D" Decongestant Tablets

combine dependable **CORICIDIN** benefits with specific action of phenylephrine to provide rapid prolonged relief of congested respiratory passages

TOPICAL | decongestant • antihistaminic • antibiotic

CORICIDIN Nasal Mist

offers prompt topical symptomatic relief of congested nasal mucosa and controls excessive nasal drainage **without** rebound effects

Each CORICIDIN "D" tablet contains 2 mg. CHLOR-TRIMETON® Maleate, 0.23 Gm. aspirin, 0.16 Gm. phenacetin, 30 mg. caffeine and 10 mg. phenylephrine — boxes of 12 tablets

Each cc. of CORICIDIN® Nasal Mist contains 3 mg. CHLOR-TRIMETON Gluconate, 5 mg. phenylephrine hydrochloride and 0.05 mg. gramicidin — squeeze-bottles of 20 cc.

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Usual dosage: For adults and children over fifty pounds, 250 mg. every six hours. For optimal effect, administer on an empty stomach. Ilosone is supplied in Pulvules® of 125 mg. and 250 mg., in bottles of 24 and 100.

1. J.A.M.A., *170*:184 (May 9), 1959.

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Say you saw it in the Journal of the Michigan State Medical Society

The JOURNAL

of the Michigan State Medical Society

Issued Monthly Under the Direction of The Council

VOLUME 58 OCTOBER, 1959 NUMBER 10

Your Medical Role in National Emergency

Leo A. Hoegh

I AM particularly pleased at the initiative of you members of the Michigan State Medical Society in dedicating this issue of your magazine to the vital subject of civil defense.

As Director of The Office of Civil and Defense Mobilization, the agency responsible for weaving together all the elements of the survival program known as civil defense, I am constantly aware of the role you physicians would play in the event of an attack on our country.

I do not predict that any nuclear attack is going to be made on the United States. I do not expect one. I do know that such an attack is not impossible, and that so long as there are nuclear weapons and the Russians have the ability to deliver those weapons, we must have a 100 per cent ability to survive such a blow as a nation, to recover from it and go on to win.

Surely, no potential enemy in his right mind would start the holocaust which would be World War III. Yet you, as doctors, know that many unhappy events are started by accident or miscalculation. The frightening concept of an H-bomb attack causes some to shrug off the implications of it all. You hear (we most certainly do, every day) such comments as, "Oh, this talk of super bombs and searing death is nonsense," or, "Well, if they drop one, I hope it hits me right on the head."

I am convinced these are not the thoughts of most Americans, and certainly not those of responsible ones.

You people who represent the medical profession are, by the very nature of your calling, almost automatically dedicated followers of any efforts toward civil defense. For one thing, you have been trained by education and experience to expect "anything" and prepare for it even as you hope it will never occur.

To many laymen, your efforts to overcome diseases and afflictions are vague programs, which "someone" is working on. To you, they are personal, compelling assignments.

To many others again, accidents, such as those in traffic, are something one doesn't think about and which the papers shouldn't dwell upon since they are repulsive to read about. To you, each victim represents a human tragedy requiring your utmost skill, sympathy, and sweat. Each is a matter which causes you heartache and concern as you fight to sustain life.

To most, the terms "the docs are here" or "the medics have taken over" seem to mean that everything is under control. To you doctors it means only that, once again, you've been assigned the task of maintaining life no matter how difficult the situation may appear.

I need not try to delude you about the awful implications of thermonuclear warfare. You, bet-

Mr. Hoegh is Director, Office of Civil and Defense Mobilization.

ter than others, realize what enemy H-bombs on the United States would mean.

You know, without half-scanning the scientific description of these bombs and missiles, or chemical or biological warfare, that any such attack would make much of the United States a virtual hell for a time. You might be faced with decisions and actions you never dreamed of when solemnly taking the Hippocratic Oath.

When I talk of civil defense in action during a real emergency, I think of you physicians on our home fronts, striving to sustain life and help survivors get back onto their knees and then onto their feet.

America *has* to live! And if we can somehow build this determination into a nationwide, unswerving certainty, we will have done much to prevent the ghastly thing of H-bomb attack from ever occurring here.

This, however, has to be accomplished at the local level. OCDM can only guide and counsel from the national level—and we find that you doctors are among our most valued allies in getting across the message of preparedness to our people.

Should an H-bomb attack come, our regression to standards we associate with "grandfather's day" may come overnight. There may suddenly be a temporary curtailment of communications. Certainly there will be disruption of transportation, food, and medical supply deliveries, and most of the services upon which we have come to rely.

In a word, overnight, those of us who survive the initial attack will have to be prepared to protect ourselves and our families for as much as two weeks, perhaps entirely without help from the outside.

I presume you doctors, along with the hospitals and clinics you serve and the medical supplies and stockpiles upon which you rely, will come through any such attack in about the same proportion as the other elements of our population.

Those of you who "come through" will have your work all laid out for you.

In addition to the many daily decisions and actions for such normal events as childbirth, serious illnesses, and ordinary surgery, you suddenly will find yourself faced with hundreds of casualties, and functioning quite likely with a kit with which even your grandfather, were he a doctor in 1890, wouldn't have been too happy.

You'll suddenly be operating as long as you can stay awake and carry on. Your hospital may be a tent or a barn. It might be one of the 1,900 Civil Defense emergency hospitals of 200-bed capacity which OCDM has prepositioned throughout the United States. Again, by good luck, it might be the same glistening new hospital you work in today, which escaped destruction.

You and your aides may have agonizing, split-second, decisions to make when you encounter mass casualties.

These, if they ever occur, would indeed be grim days.

I shall not dwell at length upon these possibilities. Surely you have thought of them; perhaps you have, or soon will have, discussed them at some medical meeting where the implications of such an attack will be the topic.

Rather, I shall move on to a more optimistic theme. This is the premise that most of our population can survive any H-bomb attack on the United States if they will just take the basic steps *now* to assure their safety. Millions of lives could be saved—and you, when you seize the opportunity to do so, can help this vital civil defense program along by having the basic facts at your command.

Our OCDM National Plan sets forth the specific mission of each level of government—Federal, State and local—for professional organization and for individual citizens. All of the civil defense principles and responsibilities for protecting life and property are clearly presented in this document.

It revolves around the goal of protecting life and property from the effects of attack by preparing for and by carrying out emergency actions to prevent, minimize, and repair injury and damage. It spells out the functions, one by one, on how the mission is to be accomplished, and by whom.

I can give it to you fast, the five points we are urging on all Americans through the wallet cards, which millions including yourselves probably carry:

1. Learn warning signals and what they mean.
2. Know your community's plan for emergency action.
3. Learn protection from radioactive fallout. This means—know enough about the silent, deadly fall-out from a nuclear explosion to prepare a shelter, preferably underground. Be prepared to

stay in a shelter at least two weeks if necessary. Any shelter is better than no shelter, but you can do the job right by dropping a card to OCDM Home Shelters, Battle Creek, Michigan, to get simple instructions. If you have no shelter when attack comes, you may die, for fallout may well cover most of our nation.

4. Know first aid and home emergency preparedness.

5. Understand Conelrad, which means tuning to 640 or 1240 on your radio dial for emergency instructions in the event of attack.

If every American would conscientiously put these five simple but important rules into effect now, we could guarantee the survival of millions of Americans who would otherwise die in the event of attack!

Meanwhile, OCDM has many other supplementary programs in operation.

We are working hard on the Continuity of Government program, which would assure a continuation of legitimate government in case of war. It would prevent a breakdown of this most essential service by setting up lines of succession, providing for preservation of records, emergency government locations, and emergency conscription of government resources and personnel. Forty-three states have introduced all or part of the suggested Continuity of Government legislation. Thirty-two have secured passage of all or part of this legislation in both houses, and the action has been formally approved in thirty of these.

We are working on Survival Plans which will cover at least 98 per cent of the population under programs worked out individually to cover local contingencies.

We strive without letup to urge Americans to build their own home shelters as a fundamental survival requirement.

We are carrying on a vast program of education in the basics of radiological defense. Hundreds of thousands of persons are being trained to help detect the presence or absence of fallout.

I cannot overemphasize how important it is that we take every possible meaure *now* to make positive that America and the free world will survive in the off-chance that World War III ever starts.

With nuclear war, the battlefronts will be our own front yards, be they in Michigan, Florida, or California. We must accomplish everything possible *now* to prevent any such catastrophe as may come with an attack which finds us unprepared.

POPULATION CHANGES

Professor Philip M. Hauser, Director of the University of Chicago's Population Research Center, addressed the physicians of the Association of American Medical Clinics, September 25, 1959. The present generation is the only one in history that has lived through two world wars and a major depression, Dr. Hauser said, pointing to the effect of the great swings in the birth rate upon the age groups of our people. Between 1900 and 1950, while the total population doubled, the school-age group increased only 40 per cent and the aged (over sixty-five) increased four times over. Between 1950 and 1980, Dr. Hauser forecast a total population increase of 52 to 80 per cent, a certain increase of 98 per cent in the number of people over sixty-five, and a likely increase of 76 to 130 per cent in the high school-age group. But while the younger and older age groups are increasing, persons twenty-five to forty years of age—the most productive years—"are likely to remain at about a constant number over the next fifteen years."

The tremendous rise in birth rates has been matched by rapidly falling death rates. Between 1915 and 1958, the general death rate in the U. S. declined from 13.8 to 9.5 and Dr. Hauser predicted that by 1980 this rate may range from 8.8 to 8.4. To maintain medical services at present levels will require a great expansion in medical practitioners and facilities, especially pediatric services which must be prepared to more than double in twenty years; and geriatric services, which must definitely double to maintain present levels of medical attention to our senior citizens. If the birth rate stays up the number of obstetricians must increase 50 per cent by 1980.

Regional Organization and Planning and Peripheral Community Responsibility

Albert E. Heustis, M.D., M.P.H.
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SOME of the casualties are condemned to death. They will show vomiting within a few hours of the bombing. Survival will be measured in days or weeks at the most. Other casualties will show some vomiting which subsides in a few hours. Various symptoms may appear one to three weeks after the bombing, including hemorrhaging, loss of hair, ulcerations of the mouth and infections of wounds and burns. The death rate will be high in this group if they are untreated. Still others who show no vomiting on the day of the bombing may still have had a significant dose of radiation. Some of this group may show symptoms later and will die if untreated. Thousands will flee the devastated areas, seeking shelter, food and care.

This description of victims of an atomic disaster is based upon material issued by the Office of Civil and Defense Mobilization. While it may be difficult to accept the real possibility of atomic, biologic or chemical warfare, and even more difficult to plan how the medical and other health professions would handle their responsibilities in any such situation, this acceptance and planning is required in the interest of civil defense for the people of Michigan. We must accept the possibility of major disaster. We must plan how to deal with it.

While the effort does, indeed, partly represent a response to the rumbles of multimegaton weapons, this also is a way to prepare for natural disaster. Michigan's experience with tornadoes and floods has shown the value of advance planning and inter-community cooperation.

Many communities have made good progress in health services civil defense plans. But most areas are not prepared to meet any wide scale emergency. As an example of the relative torpor, while health services regional planning has been urged for about two years, only one area of the state has so far started such organization. Thus, comment on area planning is presented here not as reality, but rather as a challenge. Medical leadership is needed.

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Responsibilities of Physicians

As well as contributing to state and national civil defense planning and keeping aware of developments in disaster care, civil defense asks you to take part in health services planning and training in your local community, in county-wide organization, and, insofar as possible, in regional planning. A fairly recent development, regional planning embraces a whole series of relationships among professions and localities, particularly between critical target areas most likely to suffer attack in the event of war and the surrounding support or peripheral areas. Because of its importance in the overall organization for civil defense, such planning deserves a high priority.

Background on Regionalism

Regional organization grew out of the well-founded fear that a plan based mostly upon local autonomy might well lead to sheer bedlam. Without some type of close liaison, the situation, particularly in support areas, could turn into a nightmare of miscalculations. The need is summed up in one of the items appearing in the Office of Civil and Defense Mobilization's "Principles of Civil Defense Operations":

> "Even after full mobilization no section of a target area can be expected to have sufficient forces for complete self-protection. All civil defense forces of the area must be under the control of one authority and available for dispatch to any part of the area. Similarly, supporting forces outside the critical target area must be prepared to render aid. *To assure proper utilization of these forces, a practical plan for their use must be in existence." (author's italics)*

With special emphasis on providing for the best use of support area capabilities, the "practical plan" as adopted nationally and in Michigan calls for regional organization. The move for area planning had its beginning in Michigan in the fall of 1957, when the Michigan State Medical Society Committee on National Defense recommended that the Michigan Department of Health work

with the Society and with the Michigan Office of Civil Defense to set up regional defense organizations to cover the state. Primary responsibility was assigned to the Michigan Department of Health for two reasons: (1) the Department has the delegated responsibility for state medical civil defense and, (2) the State Health Commissioner serves as state civil defense medical director. The Medical Society Committee strongly recommended that the State Health Department, Michigan Office of Civil Defense, and the Society Committee, join to encourage physicians and others to give leadership in setting up the regional network.

Organization of Regions

The state is divided into twelve health services or "medical" regions (see map). These represent subdivisions of the five civil defense command control areas, with headquarters in Escanaba, Benton

Harbor, Mt. Pleasant, Owosso and Ann Arbor. Planning for each health services region will be carried out through an executive committee. Ideally, this committee will cover all communities and concerned professional groups in both support and target areas.

County health services civil defense committees are the basic building blocks for the regional executive organization. In naming county committees, consideration should be given to including practicing physicians, the county or district health officer, nurses, hospital administrators, veterinarians and dentists. The county civil defense director and civil defense directors of any municipalities within the county may be ex-officio members.

County committees in each area will be asked to review the proposal for regional organization. When the proposal is approved, the committees will be asked to choose representatives for the regional executive committee. At the first meeting of the regional group, it is hoped that:

1. A medical director, co-director and deputy for the region will be elected.

2. Consideration will be given to regional committee membership for persons in addition to the county representatives.

3. The regional committee will consider and outline basic functions.

This detail on organization is cited to indicate that the design for health services regional civil defense calls for an organization built from the bottom up, not the top down; an organization which is sensitive to all of the communities, counties and concerned professions in the area; an organization which can tap the strength and knowledge and imagination of all interested lay and professional groups in the area.

Regional Planning

Work of the regional executive committee will include preparation of an area health services civil defense plan and recruitment of people to fill positions. To do this job, the committee will need to determine characteristics and special problems of the area. This will depend upon variables such as the number of target or aiming areas in the region or nearby, the resources of support areas and the strength of current medical and public health organization in the area. Target areas in the state have been pin-pointed by the Michigan Office of Civil Defense. The health services phase of the county prototype survival plan—prepared by the state health department in close cooperation with many other groups—indicates some of the detail which should be encompassed by the regional plan. As examples:

Hospital Care.—Special effort is needed to plan for emergency hospital care. Each hospital should have a disaster plan. The "Michigan Hospital Disaster Plan" available from the Office of Civil Defense—originally developed in Detroit—is a workable and widely used model. In addition, basic supplies and equipment for 200-bed emergency hospitals have been provided through the Michigan Office of Civil Defense. These units are intended to augment available hospital facilities in support areas. At present, Michigan has been allocated fifty-eight of the emergency hospital units—our full quota. These are stored in strategic areas. In addition, three emergency hospital units for training purposes have been made available in Detroit, Oakland County and at the University of Michigan. The regional committee should help plan how these hospital units might be put to most effective use. Realistic plans for hospital care obviously can be made only after determining the probable evacuation pattern of target areas and the availability of professional and trained personnel in the support areas.

Training.—A second area of critical concern is training, which should be guided by a realistic area-wide plan. Special training is needed in handling radiation damage and in dealing with widespread chemical or biologic contamination. Scope of the possible emergency is indicated by a list of thirty deadly diseases—many of them exotic—which could be used by an enemy in germ warfare. The need for trained auxiliary help of many types is virtually boundless. The regional committee should stimulate area-wide training programs for various groups, including control center units, emergency treatment station groups, emergency hospital groups, blood collection groups, and groups to help carry out radiological monitoring. Resources which can be used in training include Red Cross courses and materials available through the Michigan Office of Civil Defense.

As these two examples indicate, the development of regional organization is intended to help bring about a comprehensive assessment and gradual improvement as necessary of area medical

and health resources which might be used in time of disaster. The regional committee should meet periodically to evaluate plans and progress and to work out problems—not only in developing the sound, area-wide medical civil defense organization, but also in maintaining interest and support for this umbrella which literally may mean the difference between life and death for thousands of Michigan people. The regional organization will only be as effective as the effort which the physicians and other health professions of the area put into it.

Status of Regional Organization

To date, as already indicated, most of Michigan's regional health services organization for civil defense exists only on paper. Little has been done for one reason: the state health department was given the responsibility without necessary funds to do the job.

In view of limited resources available, it was deemed wise to start by attempting to develop one regional organization as a pattern for the state, rather than to begin in many areas simultaneously. The area chosen for a trial is southeastern Michigan, a concentrated target area.

Preliminary organization steps have been carried out in this region. A regional executive committee has been formed and has elected a director. The committee is beginning to consider some of the problems of the area.

Peripheral Responsibility

As anticipated, one of the difficulties is trying to provide practical, effective goals and plans for peripheral or support areas. In case of atomic, biologic or chemical warfare, these areas—the cities and communities removed from target areas —would receive thousands of evacuees including the persons who have suffered radiation exposure or contamination to various degrees. As well as caring for the evacuees and casualties, the support areas would be relied upon to provide mobile help for the stricken areas. The problems are formidable, as the following questions show:

"We only have 30 doctors to handle 100,000 people now—how could we care for evacuees?"

"How can we provide for emergency nursing help when we can't even get nurses for routine county services?"

"How can we train volunteers without added manpower and budget?"

"How can we plan for an emergency when we really have very little idea of what the real scope of the problem would be?"

Such questions cannot be ignored. Yet, they also should not cause planning efforts to bog down. While perfection is not anticipated, as indicated in the health services phase of the county survival prototype plan, there are a wide variety of jobs to be done. Limitations in one aspect of the effort should not short-circuit the rest. The county plan makes some points worth emphasizing:

1. Maximum use will be made of existing facilities, equipment and personnel within each community. To the greatest extent possible, the organization and operation of civil defense services will be incorporated in existing units of government, rather than being a separately administered organization established for that purpose. In other words, target area and support areas, working together, plan to make the best use of available resources. It is suggested that joint effort and ingenuity focused on the problems of how resources can be stretched might both serve the cause of civil defense, and also help improve other community health programs.

2. The local director of civil defense will appoint, wherever practical, the local full-time health officer as Director of Health Services. This is recommended since the local health director often is in the best possible position to help co-ordinate county efforts and to help develop relationships between the local groups and the regional organization.

3. Local representatives of physician and other health professions will be appointed as members of an advisory committee to the local civil defense director and the director of health services. This would intensify existing co-operation and help bring a continuous exchange of information between medical groups and lay civil defense authorities.

As these examples indicate, every attempt is being made to keep health services civil defense planning on a practical, realistic basis. The peripheral area cannot be expected to produce an abundance of trained personnel in the manner of a magician pulling rabbits from a hat. But it can be expected, for its own good and the good of nearby areas, to plan to help to the limit

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The Public Health Problem in Non-Target Area Counties

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IT is sometimes stated that the public health problem in non-target area counties in the case of enemy attack will be the same as under normal conditions with only a variation in the extent of activities. This opinion might well be open to question since there is the distinct probability that non-target areas will have serious interference with their normal supplies of power, food, medical supplies and communications. The responsibility for providing proper sanitation, living conditions, adequate water supplies, adequate food supplies, protection against epidemics, may be the same, but the facilities will be sadly lacking. In addition to the above problems, it is generally accepted that the public health departments are responsible for defensive plans against biological and chemical warfare and, of course, would have to meet the problem of radiation fall-out from the attack areas.

The State has prepared an outline for planning with individual counties, and in addition, the American Public Health Association has had task forces working upon the problem to try to anticipate all of the needs of the community under wartime circumstances. Most planners agree that there must be intensive education of the public to provide for as much self-help as possible since official agencies will not have the staff to protect against all emergencies. Education on protection from radiation, detection of evidences of biological warfare, the provision of individual safe water supplies and food supplies, must be a way of life for each citizen whether he be in his own community or whether he is an evacue from some attacked area. The primitive and crowded conditions under which millions of people would be living would encourage upper respiratory infections and the spread of common communicable diseases. Persons with chronic diseases, such as diabetes and other disorders dependent upon specific drugs or treatment, although not strictly a public health responsibility, would turn to governmental agencies for the necessary supplies.

History of war in other countries has always shown an increase in the number of cases of tuberculosis and venereal disease because case finding activities and isolation of such patients are usually abandoned in the face of more pressing needs. It has also been found that certain nuisance infestations, such as lice, pediculosis, and minor diseases such as impetigo, become exceedingly annoying without warranting active control programs. The mental health of the population is seriously affected by prolonged displacement from their natural environment or by the disturbances caused by others entering into their home life. In the event of enemy attack, there is no prospect of the early return of displaced persons to their original homes; in fact, for the survivors, the prospect would be one of an entirely different way of life under most inadequate circumstances. This, again, becomes a matter of education so that people may recognize the adequacy of sewage, waste and disposal facilities that in the normal way of life are considered very primitive. Health departments at all levels can and should provide in advance at least this much education and advice. They should strive also, so far as resources permit, to assist the family to secure and maintain sufficient supplies and equipment needed to support and protect itself, for a minimum of seven days. In case of "fall out" radiation problems, this is a most difficult task, involving both the determination of what is needed and convincing the citizens of the importance of providing against this exigency.

Public health officers should take the lead in marshaling and coordinating efforts of all health and medical personnel to develop and maintain adequate civil defense plans and programs. Civil defense activities should be built into all on-going programs fully utilizing all of the public health organizations' regular staff and all of the professional societies' volunteer organizations and groups of any character. Their tasks would include the

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establishment of a standby emergency operations organization which would be ready to go into action when an emergency occurs and which would be able to direct the activities of evacues to the needs of communal living.

In the pre-attack phase, it is the responsibility of existing health departments to have an exact, accurate knowledge of potential water sources and the necessary steps to make them potable. Water is one of the commodities basic to human existence, for though man can exist for days without food, he can exist only a short time without water. Much of Michigan has adequate ground water supplies for its existing populations of sufficient purity that specific treatment is not indicated. All of Michigan has relatively available surface water supplies in the form of lakes, although in the event of a national attack they would probably be rendered useless because of radioactive fall-out. Normal home water consumption averages about 50 gallons per capital per day, but it has been suggested that under disaster conditions for long term existence, a minimum of 10 gallons per day per capital could be endured. The Army plans 15 gallons per day per capita under field conditions in temporary camps.

The availability of these water supplies is jeopardized by the possible lack of power and, in addition to the problem of contamination by fall-out, there would always be the possibility of chemical or biological contamination by saboteurs. The quantity of material required to render a public water supply dangerous for human consumption is not great. It is estimated that 10 lbs. of botulinus toxin in a million gallons of water would be extremely hazardous. Slightly larger amounts of chemical poisons would have a similar effect. Besides the possibility of enemy attack, there would be an intensification of routine problems. Sewage treatment plants, if not damaged, might well be inadequate to care for the additional numbers of persons in the community, and thus contaminate water sources. The health department will have to ascertain what, if any, contamination exists before any remedial measures are initiated. Methods of detection of radiological contamination are available through simple survey-type instruments. Unfortunately, there is not a good rapid method for detecting biological agents of contamination and evaluation of the water supply may depend upon certain changes in chlorine residuals and chlorine demand. Decontamination of radiologically contaminated water supplies is difficult, perhaps impossible, on a community basis. Such contamination would require the provision of a new water supply.

Emergency sources of water may be found in domestic hot water heaters, water tanks, melted ice cubes, but, of course, they are exceedingly limited in amount. Auxiliary sources of water will almost certainly have to come from underground sources because the possibility of radiological contamination is virtually eliminated underground. Industrial wells, irrigation wells, resources of the individual domestic rural supplies, should be tabulated in every county. Since the people will not necessarily be located at the source of supply, distribution through tank trucks and storage facilities, such as canvas water tanks, will be an essential portion of public health planning.

The second major problem facing the health department that must be preplanned is waste disposal. These plans require tremendous modification, extensive and intensive revisions of normal sanitation protective measures. The problem of water supply might well make it imposible to operate existing water-carried sewage disposal systems. Failure to solve waste disposal problems will expose critical water supplies to gross contamination besides contributing to rat and insect problems. The most feasible emergency method of human waste disposal would probably be the use of latrines. They would be constructed in parks, in vacant lots, and other unpaved areas. They would have to be at least 100 feet from any well or water supply and, of course, located downgrade from these areas. Emergency provision is usually one seat per 25 persons. The use of bags or cans emptied into disposal trucks which would haul excreta to some disposal point is a potential additional solution. In hospital installations, such a provision is mandatory. Much has been written about industrial waste, but it is difficult to visualize anything approaching normal industrial activity for a long period after enemy attack. Refuse disposal, however, would be a real problem. The collection and disposal of garbage, rubbish and dead animals must be provided for in the public health planning. A complete physical inventory of all possible emergency excreta and rubbish disposal facilities, plus a record of sanitary supplies, such as odor control chemicals, lime, and construction and maintenance

equipment are an important part of the county public health planning.

Although the provision of foods and milk may not be the responsibility of the health department, the determination of their safety will almost certainly remain a public health responsibility. Here, again, there are always the possibilities of radiological, biological and chemical contamination due to enemy attack, besides the normal hazards associated with food supplies. It is quite probable that laboratory services will be inadequate and the usual safeguards applied at the source will not be in operation. Storage, because of lack of power, may also be a serious problem and it may be necessary to live off the land, using raw fruits, vegetables, milk from nearby farms and locally slaughtered meats. In feeding large groups of people in mass feeding centers, health problems will be intensified. Certain hazards, such as initial quality of food and water and the provision for cleaning and sanitizing utensils, are involved in mass feeding operations under any conditions, and of course, they would be complicated by disaster conditions. The food poisonings that we have today are usually associated with lack of basic knowledge in the matter of sanitation. This, also, can only be combatted by more intensive education. Fortunately, packaged foods, properly opened, have been proven free of radiological contamination. Fruits and vegetables that can be peeled or skinned or have the outer layers cut off, have also been proven to be safe. It may be that by following the correct pattern in handling food, the initial evaluation of radiological contamination can be minimized. Physical methods for removing contaminated material, such as washing with detergents and sanitizing agents, abrasion, wiping off with various materials or peeling or trimming off the outer parts of food, will provide an initial safe food supply and later, evaluation of contamination can be performed. The health department should have for its general knowledge, an estimate or inventory of possible sources of food whether in processing plants, warehouses or distribution centers. An estimate of what decontamination methods may be necessary will also be needed. In addition, there should be plans for salvaging and decontaminating food stocks as a continuing measure. Perhaps rules on food sanitation practices in mass feeding centers should be laid down and a nucleus of persons trained in their observance. In part, this is useful information in the community for daily living.

An important factor in the control of communicable disease in the community is the reporting of their existence to the health department. The provision for immunization of the population before an emergency arises would be a very valuable procedure. Most communities have their children adequately protected against diphtheria, whooping cough and smallpox, but in many cases this protection is questionable in adults. Routine immunization against typhoid fever as a civil defense measure has been advocated by some but has met with little or no success thus far. The provision of safe water and food supplies can do much to prevent epidemics of diseases, such as typhoid, diarrhea, dysentery and botulism. It is possible that proper waste disposal will give protection against these same diseases that might be carried through insects. Upper respiratory infections are almost impossible to guard against.

In these days of easy communicable disease control, it may be difficult to motivate public health people to organize and to take action against the public health hazards of modern war. Control of epidemics, spontaneous or induced, will depend upon well known moves: First, rapid and simple methods for bringing cases to the attention of public health workers. Second, assignment and development of public health teams that can direct sensible moves and take independent action on the basis of suspicion even before an exact diagnosis is made. Third, the readiness of these teams to supervise and direct specific countermeasures in diagnosed or suspected epidemics, such as the isolation of infected cases, the decontamination of environment, the control of vermin, the institution of vaccination and other immunization practices, or institution of mass treatment. Fourth, the determination of availability of basic supplies to carry out the above activities. Fifth, the preparation of the public by familiarizing them with the chain of command in health activities and the identification of designated public health operators by name and location, as well as training them to accept the authority of these groups. The sixth possibility is that trained public health personnel will be moved to areas where epidemics have started or threatened. If every responsible person can be taught the importance of public health requirements, such as sanitation, waste disposal, and the like, for his immediate family, a tremendous problem would be simplified.

Brief Medical Notes on Nuclear Warfare

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WHEN one thinks of nuclear weapons, it is is natural to place main emphasis on the megaton variety or so-called H bomb—a thermonuclear weapon with power equivalent to millions of tons of TNT. However, problems are not limited to these. Recourse to such engines of havoc is apt to be a last resort. It is well recognized that total war with thermonuclear weapons of this nature is likely to leave no real winners, but heirs to misery who can compare magnitudes of disaster in a shattered world. Wide ranges of bomb sizes are available and employment of smaller varieties is not unlikely. Aside from the consideration of total ruin, there are situations calling for less powerful weapons. The accompanying chart from the third edition of "Atomic Medicine," edited by C. F. Behrens, will provide a fair idea of comparative effects.*

In the chart, blast damage is given in terms of effects on multi-story brick apartments. These are quite vulnerable. It is notable that heavy windowless blast-proof construction is possible, that will sustain only moderately severe damage from air bursts in which the fireball does not touch the ground. Initial radiation is that occuring in the first minute and is comprised of gamma rays and neutrons. The time limit results from the rapid ascent of fireballs out of range. Flash burn distances are greatly dependent on atmospheric conditions as well as on bomb size, and also on clothing worn. The numbers in the chart refer to degree of burn (1st, 2nd, or 3rd).

Of primary concern is the awesome and overwhelming number of prospective casualties. An estimate from Operation Alert recounted in a congressional report* gives 8 and ¼ million dead the first day and 8 million dead within 6 weeks (about half of them from fallout). About 12 million would survive with a third recovering. Approximate estimates are based on presumption of attack on sixty cities in the United States and its possessions with thermonuclear weapons.

Aside from this general perspective, it is of vital importance to assess local magnitudes as early and accurately as possible. A practical and promising method is described by Lt. Colonel A. Steer,† U.S.A., based on a survey by helicopter or light plane to determine size and location of the crater and the zone of complete destruction. Casualty probabilities are derivable from this information assuming prior knowledge of population density. In Colonel Steer's method, four zones are taken into account with figures as follows: Zone I (complete destruction), 90 per cent killed, 10 per cent injured; Zone II, 60 per cent killed, 30 per cent injured, 10 per cent uninjured; Zone III, 35 per cent killed, 50 per cent injured, 15 per cent uninjured; Zone IV, 10 per cent killed, 30 per cent injured, 60 per cent uninjured. Size of the zones is related to the radius of complete destruction as shown below.

Ranges for thermal and indirect blast injuries

Radius Complete Destruction in Miles	Areas in Square Miles			
	Zone I	Zone II	Zone III	Zone IV
0.4	0.5	0.3	0.3	2.7
0.6	1.1	0.7	0.7	6.6
0.8	2.0	1.1	1.4	10.7
1.0	3.1	1.7	2.2	15.8
1.3	5.3	2.7	3.3	25.5

*Based on data from "The Effects of Nuclear Weapons," Government Printing Office, 1957.

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*House Report No. 2946, 84th Congress, 2nd session. "Civil Defense for National Survival." Gov't. Printing Office.

†Steer, A. Casualty estimates in nuclear warfare. Mil. Med., 118:4, 305-306, 1956.

BOMB SIZE AND TYPE OF DAMAGE	RANGES OF CERTAIN BOMB EFFECTS OF MEDICAL INTEREST IN MILES (Air Burst) (See Preceding Text)											
	1/4	1/2	1	1 1/2	2	3	4	5	10	20	40	NOTES
1 Kt. BLAST (Apt. Damage)	TOTAL	LIGHT	LIGHT	LIGHT								
1 Kt. FLASH BURNS (Degree)	3	2										
1 Kt. FABRIC IGNITION	MOST (~12cal/cm²)	FEW (~3.5cal)										
1 Kt. INITIAL RADIATION	LETHAL >3000 REM.	SERIOUS ~300 REM.										
10 Kt. BLAST	TOTAL	TOTAL	LIGHT	LIGHT	LIGHT	LIGHT						
10 Kt. FLASH BURNS	3+	3+	3	2								
10 Kt. FABRIC IGNITION	ALL	MOST (>12cal)	FEW (~7cal)	FEW (~3cal)								
10 Kt. INITIAL RADIATION	LETHAL >3000 REM.	LETHAL ~2000 REM.	SLIGHT ~50 REM									
20 Kt. BLAST	TOTAL	TOTAL	MODERATE	LIGHT	LIGHT	LIGHT	LIGHT					
20 Kt. FLASH BURNS	3+	3+	3	2-3	1-2							
20 Kt. FABRIC IGNITION	ALL	ALL	MOST (>12cal)	FEW (~7cal)	FEW (~3cal)							
20 Kt. INITIAL RADIATION	LETHAL	LETHAL ~3000 REM.	SLIGHT ~100 REM.	SLIGHT ~30 REM								
100 Kt. BLAST	TOTAL	TOTAL	TOTAL	SEVERE	MODERATE	LIGHT	LIGHT	LIGHT				LIGHT DAMAGE TO ~7 MILE
100 Kt. FLASH BURNS	3+	3+	3+	3+	3	2-3	1-2					
100 Kt. FABRIC IGNITION	ALL	ALL	ALL	ALL	MOST >12cal	FEW ~6cal	FEW ~4cal					
100 Kt. INITIAL RADIATION	LETHAL	LETHAL >3000 REM.	CRITICAL ~700 REM	SLIGHT ~100 REM.								
1 MEGATON BLAST	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	SEVERE	MODERATE	LIGHT	LIGHT			
1 Mgt. FLASH BURNS	3+	3+	3+	3+	3+	3+	3+	3+	1-2			
1 Mgt. FABRIC IGNITION	ALL	ALL	ALL	ALL	ALL	ALL	ALL	MOST >12cal	FEW ~5cal			
1 Mgt. INITIAL RADIATION	LETHAL	LETHAL	LETHAL	CRITICAL ~600 REM.	SLIGHT ~60 REM							
10 Mgt. BLAST	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	LIGHT	LIGHT		SEVERE DAMAGE TO 8 MILE
10 Mgt. FLASH BURNS	3+	3+	3+	3+	3+	3+	3+	3+	3	3		1st DEGREE BURNS TO 30 MILE
10 Mgt. FABRIC IGNITION	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	MOST >12cal		
10 Mgt. INITIAL RADIATION	LETHAL	LETHAL	LETHAL	LETHAL >3000 REM.	LETHAL ~800 REM.	SLIGHT < 30 REM.						
20 Mgt. BLAST	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	MODERATE	LIGHT	LIGHT	LIGHT DAMAGE TO 50 MILE
20 Mgt. FLASH BURNS	3+	3+	3+	3+	3+	3+	3+	3+	3+	3		2Ad DEGREE BURNS TO OVER 30 MILE
20 Mgt. FABRIC IGNITION	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	MOST >12cal	FEW ~4cal	
20 Mgt. INITIAL RADIATION	LETHAL	LETHAL	LETHAL	LETHAL	LETHAL ~3000 REM.	SLIGHT ~80 REM.						

From "Atomic Medicine," Third Edition, 1959. Courtesy of Williams and Wilkins, Inc., Baltimore, Md.

far outstrip those for serious effects from initial ionizing radiation, as indicated in the chart, but numerous people protected from the former are liable to radiation injury, these radiations being highly penetrating. About 6 inches of concrete or ½-inch steel are required to attenuate the initial gamma rays by half.

Civil Defense planning has in the past been heavily oriented toward evacuation. However, the advent of long range ballistic missiles and probabilities of extensive fallout complicate the picture. The one grossly reduces likely warning time and the other cripples travel. Shelter programs thus assume vital importance. There is no question but that wide availability of heavy shelters would greatly reduce casualties in a population drilled to reach them in a matter of minutes. Objections, however, stem from very high estimates of cost and diversion of materials, and unfortunately it is all too easy to use such estimates as an excuse to do nothing. Comparatively modest programs can accomplish much in protection from fallout, which, depending on wind and weather, can heavily contaminate areas up to 240 x 40 miles, or more. Simple shelters below grade or basements surrounded by earth can reduce fallout radiation by a factor of about a thousand or more.

In connection with fallout, it is necessary to think of monitoring programs so that people can be advised when to seek shelter and how long to stay in the shelter. Monitoring thus poses a major problem. Thought is being given to development of a combined radio and radiation meter. It has also been proposed that distribution of such an instrument be made universal. My own opinion is that such wide distribution would necessitate a huge expense for dubious results. Careful maintenance and correct standardization are involved along with requisite background knowledge for judicious interpretation of results. These are not to be anticipated on any universal scale. However, a wide distribution of good survey instruments to selected, trained individuals is certainly an essential goal: also, virtually universal distribution of portable battery operated radios should be accomplished.

An important factor in civil defense is motivation of workers in that field. It is possible to arouse great public interest, support and efforts in a temporary drive especially when events provoke acute concern. A continuous effort is quite another thing. More thought appears in order both to secure a sufficiently large nucleus of full-time professionals and to create inducements to attract and hold numerous volunteers.

In the matter of medical responsibilities, everyone is well aware of the enormity and importance of the task of dealing with injuries and burns in the event of nuclear warfare. What is probably not as well realized is the importance of administrative control, plans for effective triage, the advance selection of buildings suitable for emergency hospitals, and public health problems. Finally a new emphasis on radiation hazards is now in order. These hazards are now of such magnitude and have been so sensationally presented that popular concern is exceedingly great. In fact, it has become excessive. Many alarming statements are made, often without sufficient quantitative data to provide a basis for proper evaluation.

As regards fallout from tests, there is great controversy about strontium, Sr 90, a twenty year bone seeking beta emitter, as to whether or not it is related to a possible increase in leukemia and genetic effects. Elaborate mathematical calculations have been made to indicate the degree of danger but it needs to be borne in mind that much uncertainty still pertains to the role of the minuscule doses involved. Again the body metabolism discriminates against strontium in favor of calcium. In respect to genetic effects, recent work by the Drs. Russel of Oak Ridge shows that dosages received at low rates are probably not as harmful as when received in an "acute" dose. Certainly, we wish to keep all exposure to a minimum, but the situation is far from being so urgent that valuable X-ray studies need be avoided or that we should risk falling behind in the matter of nuclear weapons. Our pre-eminence in that field may well serve to preclude nuclear attacks which, amidst great physical havoc, would cause gross exposures on a huge scale in comparison with which our increased exposure from tests fades into insignificance.

As regards more serious fallout exposure, this occurs when the explosion is sufficiently low so that the fireball contacts the ground. The updraft then carries with it much debris which is rendered radioactive and is the source of heavy fallout. Again bombs can be constructed to accentuate fallout. The greatest peril to health and life is from the external exposure to gamma rays emitted by the various fission products. However, the skin is also likely to acquire beta burns unless protect-

ed or promptly decontaminated through cleansing with plenty of soap and water. Such burns were very frequent in the Marshall Islanders accidently exposed to heavy fallout. Ingested or inhaled fission products did not notably contribute to the clinical picture. Experimental animals heavily exposed showed barely detectable radioactivity six months later. In periodic follow-up studies the Marshall Islanders appear to be doing very well.

The treatment of casualties has been well publicized in many articles and books and so only a few highlights will be mentioned here. Many advances relate to blood and tissue banks, including methods of preservation and storage as well as utilization. It may be possible to preserve red cells longer by a glycerine technique or possibly by quick freezing methods. Radioisotope techniques are notably contributing to studies of metabolism and electrolyte balance.

A study of much interest and promise is being made on anorganic bone and also on boiled and defatted bone from animal sources for surgical purposes at the Naval Medical Research Institute. The studies were initially directed by Captain F. L. Losee (DC), USN, and are presently directed by CDR H. W. Lyon (DC), USN. Anorganic bone is prepared by extraction methods employing ethelenediamine to remove all organic material. This bone can be stored indefinitely at room temperature and without special precautions. It can be autoclaved when needed for surgery and used regardless of animal source. Early clinical trials have been encouraging. However, this bone is very brittle and crumbles readily. Bone prepared by prolonged boiling and then extraction by a fat solvent such as ether, is quite strong. Tests on experimental animals show a high incidence of success without occurrence of sensitization.

In the case of burns, meeting the tremendous problem of skin grafts may be notably helped by the use of embryonic bovine skin.

In the field of radiation effects there is much of interest. Considering prophylaxis, a host of agents have been found of some help in experimental animals. Of the pharmaceuticals, only one is promising for wide scale human use: A.E.T. (S_2 B-amino-ethylisothiouronium Br, HBr). It appears to be of low toxicity, potent orally and highly effective.

It should also be kept in mind that protection of some bone marrow in the sternum and femora and of the upper abdomen to include the spleen can be life-saving and is entirely practicable. It is not necessary to think in terms of "armor plating" the whole body and so conclude that excessive weight makes it ridiculous. Limited protection would be a boon to "calculated risk" workers.

The use of bone marrow has come to the fore in recent years and has proven of great value prophylactically and also in therapy, the latter being dramatically exemplified in the successful treatment of a group of Yugoslav scientists accidently exposed to supra-lethal dosages in a reactor accident. (The Yugoslav scientists were treated at the Pasteur Institute, Paris, France.)

Splenic homogeneates have also proven of value along with platelet transfusions, the latter of course, in treatment of the hemorrhagic phase of severe radiation illness. Work on cell-free splenic extracts shows promise. A major difficulty with all these, however, relates to lack of availability in sufficient measure for the vast needs following a nuclear holocaust. The huge number of victims and the devastation will limit diagnosis and therapy largely to more conventional methods. However, these too can accomplish much.

Sharp clinical observations will serve to indicate the gravity of exposure fairly early even though desirable laboratory work is impossible. In therapy, main reliance will probably have to be on rest, sedation if and as necessary, bland, low residue diet, careful oral hygiene, fluid and electrolyte balance, antibiotics, transfusions and parenteral nutrients. Antibiotics should be reserved until counts fall below 1000 or signs of infections appear. Penicillin along with broad spectrum types by mouth are then usually advisable. Whole blood transfusions will likely have to be reserved for severe anemia. Plasma, albumin and amino acids may be needed in the anorexic stage.

In conclusion let us remember that medical preparation for civil defense will surely ameliorate even the worst situation; nor will such efforts though oriented primarily to war problems, be wasted if the devastations of nuclear war are avoided. Effective working organizations for medical work at the sites of disaster, control of traffic and distribution of patients, will pay big peacetime dividends. Considering tornadoes, hurricanes, fires, transportation accidents, floods and occasional earthquakes, there is no lack of disasters and the record shows that on many recent occasions there was great room for improvement in meeting their challenge.

Problems in Nuclear Radiation Casualty Management

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IN treatises and in discourses on nuclear warfare, it has become practically axiomatic to treat all features of nuclear weapons in terms which imply that a complete departure from previously observed manifestations and experiences will characterize their effects.

Nevertheless, the blast and thermal effects of the nuclear weapon are no different in quality than the blast and thermal effects of older weapons and therefore call for no new therapy. Rather, the problem in servicing the blast and thermal casualties will be logistical, stemming from the magnitude of incidences. A tremendous disparity will be precipitated between the numbers who shall require medical service and the personnel and material available for rendering such service.

However, reverting to the matter of novelty in modern warfare, the nuclear weapon has indeed ushered in a new element medical-wise—a startling new element and one which differs radically from weapons effects of the past. Defenses of the past will no longer be adequate and few of the medical procedures empolyed in treating battle casualties heretofore will be effective.

I have reference, of course, to nuclear radiation, elaborated and disseminated by the processes of nuclear explosion. Since our most serious problems in casualty management have arisen due to the introduction of this factor, it is with these problems that this paper shall be concerned.

Studies on the effects occasioned by initial nuclear radiation and by residual nuclear radiation distributed by fallout patterns ensuing from major nuclear attacks, indicate that casualties resulting from ionizing radiation would exceed in number those caused by blast and thermal effects of the bombs, plus all other sickness occurring in the surviving population. The unmistakable indications are that in the event of nuclear attack, radiation sickness will overload our remaining hospitals, and overtax our surviving physicians and other medical personnel to a point that unless some special provision is made or some particular procedure is contrived, it may happen that decisions will have to be made either *not* to treat purely radiation sickness cases at all, or to treat only radiation sickness and nothing else. Presently, incontrovertible evidence demonstrates that medical resources—in personnel or facilities—do not exist to treat both.

Let me give you one example of the magnitude of the radiation problem which will be posed. On October 9, 1958, the Operational Headquarters of the Office of Civil and Defense Mobilization presented a briefing entitled, "The Basic Effects of Nuclear Weapons." An extract therefrom reads as follows:

> "Let us assume that one 20 megaton weapon has exploded on the surface of St. Louis, Missouri. With time and with weather conditions such as appear on a typical fall day in this area, one hour after the burst, serious fallout would encompass the entire metropolitan area of St. Louis and would extend about forty miles into southwestern Illinois. The radiation dose rates would be more than three thousand roentgens per hour and might be as high as ten thousand roentgens per hour at some points downwind of ground zero.
>
> "Seven hours after the assumed explosion, we find that a one hundred ten mile wide pattern of fallout has extended 185 miles downwind from St. Louis. The fallout has crossed Illinois and is beginning to affect western Indiana. The fallout has decayed by a factor of ten—from three thousand roentgens per hour down to a dose rate of three hundred roentgens per hour.
>
> "After twenty-four hours, the fallout pattern would extend some four hundred and seventy miles, penetrating deep into eastern Ohio. Although the fallout situation is less serious in eastern Ohio than it is in Illinois and Indiana, considerable radiation sickness and some fatalities could occur. The radiation level, which initially was three thousand roentgens per hour, has decayed further and after twenty-four hours, it represents a radiation dose rate of sixty-five roentgens per hour."

Thus, from a single twenty megaton surface explosion, an area of more than five thousand square miles has been seriously contaminated, and the millions of inhabitants residing therein saved

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from radiation sickness only to the extent that they have followed rules for shielding in shelters or have avoided the path of fallout by timely evacuation.

Before projecting thought relative to requirements entailed in making special provision for servicing the extraordinary numbers who may be stricken with radiation sickness, it would perhaps be advisable to re-examine the symptomatology and other salient features of this malady and also briefly review the progress that research has made in devising modalities for its treatment.

Ionizing radiation was discovered as a consequence of fundamental physics research. However, no satisfactory information about the effects of radiation could be collected until reproducible conditions could be established. It had long been known that excessive exposure to nuclear radiations such as X-rays, alpha and beta particles, gamma rays, and neutrons which are capable of producing ionization, can cause injury to living organisms. However, so many variables entered into the production of biological effects that it became accepted that precise biological action of irradiation on tissues could be defined only within nebulous limits if predicated upon supposed dosage. While exposure to certain dosages for certain periods would usually produce certain biological effects, it became apparent that clinical symptomatology and laboratory findings were the more preferable indices in the determination of radiation effects in a given individual.

The symptomatology appears to be due to the ionization produced in the cells which not only destroys tissues required for normal organic functioning, but also, through the products formed in the process, is productive of toxic reactions. An important cell effect of ionization is, of course, the inhibition of cellular mitosis, the tissues most susceptible to mitosis inhibition being the hemopoietic and the gastrointestinal complexes. However, as Dr. Crawford F. Sams points out, "there is a great deal of evidence that functional responses of certain critical tissues in which mitosis is of minor importance or of no importance, may be more important in the over-all body response to radiation than the inhibition of mitosis in the hematopoietic tissue or in the lining of the alimentary tract."

Sams and the University of California group found that the more highly differentiated tissues which had always been considered to be radioresistant under one of the axioms of radiobiology are really sensitive. The evidence now seems to indicate that tissues such as the central nervous system and the endocrine system are highly sensitive functionally to comparatively low doses of radiation.

Clinically, we are confronted with the following symptomatology. When very large doses of whole body radiation has been suffered, that is, acute exposure to approximately 2000 or more roentgens, injury to the central nervous system is quickly apparent. There is practically immediate incapacitation attended by ataxia, hyperexcitability interrupted intermittently by stupor, convulsions, and marked respiratory distress. Death is certain, generally within several hours though in exceptional cases, the end may be delayed a day or even two.

If the dosage drops below 1000 roentgens, but still remains high, that is above 700, gastrointestinal symptoms appear early and are severe. Within the first several hours there is nausea and vomiting, followed by severe diarrhea. Hyperpyrexia sets in and, of course, there is marked prostration. If the dose is in the vicinity of the 700 roentgen range, periods of remission of two or three days may occur though during these remissions profound changes are taking place, particularly in the blood forming tissues. Then a recurrence of the earlier symptoms is seen, delirium and coma set in and the patient expires, rarely surviving two weeks. Aside from the foregoing symptoms, there may be seen in this group, stomatitis and pharnygitis, mucousal hemorrhaging and scalp epilation.

If the exposure has been to materially lesser doses, as for example between 300 to 450 roentgens, survival is possible. The initial symptoms are in many cases similar to those found in patients who have been exposed to the higher and almost invariably lethal doses, namely nausea, vomiting, diarrhea and prostration. These patients may have a latent period up to two weeks commencing the third day post-exposure. After the return of the symptoms, though some of these patients survive, practically all have a difficult time. There is marked tendency to internal hemorrhaging, hyperpyrexia and delirium, severe gastrointestinal symptoms, epilation, susceptibility to wound infection, lesions of skin, lips, mouth and pharynx and also marked emaciation. A general symptomatology characteristic of agranulocytosis is common. Death may ensue in two weeks to

three months. Those who survive three or four months, and do not contract serious intercurrent infections such as tuberculosis or severe kidney involvement, have a long siege of illness, but do recover.

Individuals who suffer exposure to doses of lesser magnitude than 250 roentgens will probably recover, but many of these undergo a course of illness similar to those exposed to the lethal doses except their symptoms are not as severe. During their periods of latency, these patients can do work. If they suffer no complicating infections, they generally recover in about two or three weeks.

I have detailed the foregoing symptomatology primarily to emphasize the extensive care required for these cases and the tremendous burden they will place on medical facilities and personnel.

It is to be regretted that in many quarters an attitude of hopeless defeatism has been exhibited on the question of medical care for the radiation sick. Even the desirability of giving supportive treatment of whole blood, antibiotics and general nursing care has been grudgingly assented to, but considered nothing more than a futile gesture. While this attitude of negativism has prevailed, nevertheless research in the field of therapy for radiation sickness has been making most encouraging progress. The proceedings of the Conference on Research in Radiobiology and Radiation Medicine, held in Washington in December of 1958, under the auspices of the Office of Civil and Defense Mobilization, revealed specific advances. Among these was the report on progress in the Section of Radiobiology at the Sloan Kettering Institute. Of marked importance in the study reported were the results obtained in healing late radiation lesions with tri-iodothyronine and thus opening a vast possibility of other remedial agents being found among thyroid analogues.

The Walter Reed Army Institute of Research, as reported by Lt. Colonel James B. Hartgering, is accomplishing protection through chemical means. He reported that while we are still a long way from a pill for the exposed soldier or civil defense worker, definite hope in this area is in the offing. Also evidence was produced that indicated that germ-free animals showed a markedly better survival rate as compared to conventionally bacterially contaminated animals. This study seems to imply that failure to expend every effort to treat the radiation sick intensively with antibiotics is tantamount to withholding a remedy which could mean survival for the patient.

One of the most gratifying reports was rendered by Dr. Leonard J. Cole of the Experimental Pathology Branch, U. S. Naval Radiological Defense Laboratory in which the following statements were made: "We know that the limiting factors in the survival of animals in the lethal single acute dose is the status of the bone marrow and the lymphoid tissues. We know that animals given bone marrow injections following a certain lethal dose will survive. That is to say, in the animals which are radiated and given no treatment, DNA content of the bone marrow drops very sharply and stays down until the animal dies. The animal given bone marrow infusions has an initial drop and then in four or five days we begin to see a very sudden and rapid-sharp increase in the DNA content which is a matter of regeneration of bone marrow." ". . . if you give transfusions of bone marrow, the animals survive. They survive and these surviving animals show a low incidence of leukemia which we feel is related to the fact that in the acute phase, after the transfusions of the bone marrow cells, you get very dramatic regeneration of the bone marrow and lymphoid tissue."

Then there were publications from the National Cancer Institute of the National Institute of Health. Dr. C. Gordon Zubrod reported for the Institute, ". . . that not only are advances being made in bone marrow therapy, but also that work is progressing with the chemical groups A.E.T. developed at Oak Ridge." He reported that, "A.E.T. given in large doses to animals cuts in half the effects of total body radiation."

I have included in this paper the allusions to progress in the research efforts to produce radiation sickness therapy in order to emphaize that with the development of specific therapeutics to combine with our present supportive treatments, there will be developed an effective armamentarium to combat the lethality presently identified with radiation sickness.

However, the availability of therapeutic means to afford a greater measure of survival of those afflicted with this ailment will be of little benefit unless we develop a reservoir of personnel trained to apply, under proper control and supervision, the modalities of treatment which will be made available.

The exigencies of the situation demand that

there be generated a corps of personnel who can be made capable of servicing those who will be stricken by nuclear radiation and thus relieve the physician of this burden—except to the extent to which it will be necessary that he exercise control, training, consultation and supervision.

In considering types of individuals to be recruited, the primary consideration should be that those selected for training be of an intellectual level which would bespeak their capability to master the instruction to be given.

Furthermore, in contemplating sources, consideration should be given to the fact that unlike the physiotherapist, or the psychologist, or the X-ray technician, or other paramedicist, who, when his training is completed finds employment in the field in which he has been trained, the lay volunteer trainee in nuclear radiation matters would have but little opportunity to apply the acquired skills. As a result, it is likely that he would not be prompted to keep his training refreshed nor long adhere to his group identification.

Therefore, an additional source has been considered embracing those who are in a vocation on the fringe, so to speak, of the medical field, such as the dental assistant, the commercial laboratory worker, the X-ray technician and others of like categories. It would be particularly desirable to enlist those who are licensed in their vocation. These could be marshalled for training and, with proper management, continued proficiency in the aspects of this special training could be made mandatory for the holding of their licenses.

Curriculum for training programs should be made comprehensive. These training programs should embrace as much of the field of nuclear radiation as is necessary to produce competency in dealing with the many facets of the problem. Specifically, training should include radiation monitoring, decontamination, nursing procedures, the handling of a hypodermic and of an intravenous set, some laboratory techniques, recognition of the symptomatology exhibited in the various stages of radiation sickness and in the various degrees of its severity, and didactically, as much on the subject of the biological effects of nuclear weapon's radiation as it is practical to transmit to lay people.

In reference to a program source and an overall teaching management, radiologists and particularly those who have devoted themselves to deep ray therapy and therefore have had much experience in radiation effects, would, of course, be the best fitted to devise, organize and plan courses of training.

The aim is to produce a corps of personnel, independent of the other paramedical groups, medical auxiliaries, and other medical aid groups, specially and specifically prepared to have delegated to them appreciable portions of the medical burden which nuclear radiation has ushered in.

In closing, I wish to point out that while in the event of emergencies of the magnitude that we envision, the shortage of medical skills makes it mandatory that certain priorities for treatment be exercised, that it cannot be permitted to mean that care of the cases that we label "expectant" shall be totally ignored.

We cannot allow a spectacle of thousands upon thousands of desperately sick and dying being permitted to expire unattended. Under such circumstances, the demoralization among our surviving populace would defeat the very ends for which the recent policies relative to priorities in the medical treatment of mass casualties have been devised. This situation will be most acute in the area of radiation sickness.

From all data that can be produced, it is obvious that the medical personnel resources under conventional management will prove too meager to cope with the problem.

It is equally obvious that American medicine would be taking an untenable position, in fact an unthinkable position, if it simply declares its inability to meet the situation.

A corps of men and women such as I have depicted, prepared to render the greatest possible assistance along the lines indicated, could prove to be a most useful factor in alleviating the tremendous pressures on our medical service that the gigantic problems of radiation medicine have precipitated.

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The Management of Massive Radiation Injuries

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THE ever present possibility exists that we may be confronted with the necessity of treating a large volume of patients who have suffered radiation injury of various degrees. This could occur not only in time of atomic warfare but also due to industrial mishaps. It is, therefore, very important that some fundamental information be available on this subject in order to further our understanding of the processes involved and to give us a guide by which to manage these patients. The possibility of widespread use of personal dosimeters to determine the extent of dosage received is not feasible at the present time. Only in specialized occupations are personal dosimeters used routinely and none are at present available for the mass of the population.

The use of clinical laboratory techniques to detect changes in the blood elements and the chemical constituents of the body is a valuable adjunct to the clinical methods of evaluating radiation damage. In the event of mass injuries, existing laboratory facilities and trained personnel would be grossly inadequate to handle the problem. However, in a limited industrial catastrophe much help could be obtained through full utilization of laboratory procedures. Therefore, in mass disaster, such procedures should be used only in answering vital clinical questions, whereas in a limited disaster the laboratory could be used much more fully.

There remains nonetheless at the call of every clinician his most valuable asset in the management of radiological injuries—his own clinical appraisal and judgment. Emphasis in this article will be placed upon the clinical signs and symptoms and upon understanding the processes involved. Exact knowledge is not always possible in this regard, but from animal studies and a few human experiences, we can piece together a fair approximation of the true picture.

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Hematological Changes

Lymphocytes are the most vulnerable to damage by radiation, and are the first to show its effects. The lymphocyte count undergoes a rapid drop which reaches a low point at the end of about five days and then the count stabilizes at a low level until the end of the fourth week. Following this, there is a gradual rise in lymphocytes if the patient survives and this rise continues to the end of about seven weeks when there is virtual complete recovery in favorable cases. If the lymphocyte count drops to less than 500 in the first twenty-four to forty-eight hours, it is a bad prognostic sign. If the lymphocyte count is found to be increasing after the first week, a more favorable prognosis is indicated.

Granulocytes show a transient rise in the first few hours and this may last up to forty-eight hours and then fall, reaching a low point after about four weeks. The recovery then parallels the change in the lymphocytic element. The transient leukocytosis in the hours following radiation exposure is due chiefly to the rise in granulocytes.

Erythrocytes show a gradual drop at first and then, especially after the third week, they may fall moderately reaching a low point at the end of about six weeks. Following this, they begin to recover with a moderate rise back to normal if the patient survives.

The platelet count falls gradually and reaches a low point at the end of about five weeks. If the platelet count falls to extremely low levels there is danger of death from hemorrhagic effect, this usually taking place between the fourth and seventh weeks. Capillary fragility is also noted during the period and may be related to the low platelet count.

In the cases of severest exposure, there may be a complete suppression of the white count so that the count will total only one to two hundred at the end of five days. Bone marrow studies on these patients invariably show a total loss of myelopoietic

tissue. These patients almost invariably have a fatal prognosis.

Signs and Symptoms

1. *General.*—Headaches, virtigo, debility, abnormal sensations of taste or smell.

2. *Gastrointestinal.*—Anorexia, nausea, vomiting diarrhea.

3. *Cardiovascular.*—Tachycardia, arrhythmia, fall in blood pressure, and shortness of breath.

4. *Psychic.*—Irritability, insomnia, fear, et cetera.

Specific Metabolic Changes

Water Balance.—There is absorption of water from the tissues into the blood stream resulting in a cellular dehydration with a hemo-dilution. Later, profound dehydration may occur depending upon the severity of the skin reaction, associated burns, and gastro-intestinal symptomatology.

Acid-Base Balance.—There is little effect unless the dose is high enough to produce gastrointestinal symptoms of moderately severe degree. There may be an initial acidosis for the first two or three days, followed by an alkalosis which is usually of a degree of severity related to the G.I. symptoms.

Inorganic Electrolytes.—There is a loss of chloride, sodium, calcium and also some loss of sulphur and phosphate. There is a paradoxical rise in the serum potassium.

Protein Metabolism.—There is an increase in the total protein chiefly due to the increase in the albumin fraction. This is present during the first week but returns to normal during the second and third weeks only to recur again during the second month. There is an increased nitrogen excretion in the urine but this may be related to diuretic effect which occurs during the second, third and fourth days following exposure.

Purine Metabolism.—There is an increased urinary excretion of purine occurring in the more severely radiated cases.

Fat Metabolism.—There is a decrease in serum cholesterol.

Carbohydrate Metabolism.—There is a decrease in the blood sugar for the first twelve to twenty-four hours, usually of minimal degree. Following this there may be a gradual but sustained rise to normal or slightly above normal level.

Vitamin C.—The levels of this vitamin are found to be consistently low, suggesting that this may be a factor in capillary fragility and also one of the factors in bone marrow depression since Vitamin C therapy in the bone marrow depressions may be of aid in affecting bone marrow recovery.

Histamine-like Effect.—Histamine-like substances are believed to be liberated during the tissue break-down subsequent to irradiation. It is found that histamine itself can produce most of the symptoms and metabolic changes of radiation illness. Histamine is also capable of producing the fatty changes in the liver similar to those seen following radiation injury. Treatment with antihistaminics has been used for years by some radiation therapists to allay the systemic symptoms during the course of treatment with some success.

Acute Radiation Syndrome

This can be divided into four general categories depending upon the amount of radiation received and the patient's individual susceptibility to radiation damage.

Supra-Lethal Range.—These are generally patients who have received a dose in excess of 1000 roentgens total body. They have a rapid course which usually results in death during the first one to two weeks. This begins with nausea and vomiting, occurring early in the first day, even after a period of one to two hours or less. This is followed by anorexia, malaise and severe diarrhea with excruciating thirst. A severe, step-like fever begins after the fourth and fifth day, and continues to rise until death. In the most severe cases, the fever will start after the second or third day. The earlier the start of the fever the worse the prognosis and the shorter the course to a demise. A significant clinical observation here is the absence of any significant latent period between the initial onset of the nausea and vomiting and the onset of continued severe diarrhea. These patients fall into a group where medical therapy at present has little to offer other than strong sedation and analgesics. The pathologic process which brings about their demise is centered in the severe necrosis of the gastro-intestinal tract, and those few that might recover from this will usually succumb to

the severe hemorrhagic affects of the thrombocytopenia.

Mid-Lethal Range.—This extends from 250 to 1000 roentgens total body radiation. In these patients, severe nausea and vomiting occur in the first or second day and there is a latent period of several days before the nausea and vomiting recurs. At this time a diarrhea may set in; the shorter the latent phase, the worse the prognosis, the longer the latent phase the more hopeful the outlook. The diarrhea frequently subsides after a varying period of time. At the end of the second week or the middle of third week, epilation begins to occur and severe malaise returns. This is followed by fever and pharyngeal pain due to a mucositis. About five days after the onset of epilation, the platelet count becomes seriously depressed, bleeding time increases, and capillary fragility will be present as evidenced by the Rumpel-Leede test. This can lead to multiple purpuric episodes with hemorrhagic spots being present throughout the body but most prominent on the upper half of the body, especially the head, face and flexure surfaces of the extremities and the anterior portion of the chest. Bleeding of the gums is noted during the brushing of the teeth at this time and the slightest trauma will bring about a purpuric spot. If the patient has lacerations or fractures, bleeding from the site of injuries will frequently occur during this period of time. With proper treatment, a large percentage of the patients in this group will show a gradually improving condition over a period of several months until recovery is evident.

Sub-Lethal Range.—These are the patients who have received from 100 to 250 roentgens. The patients usually manifest a mild nausea and vomiting on the first or second day. This is followed by a latent period. Following this, there may be a mild recurrence of symptoms of nausea and vomiting, or only a period of malaise. These patients then go on to recover and usually manifest none of the other symptoms listed above. However, if severe injuries, burns, or fractures are present, these patients show a tendency to delayed healing and greater tendency toward infection. Note especially that diarrhea is usually absent from patients who have received dosage in this range.

Sub-Clinical Range.—These patients receive less than 100 roentgens. They may be completely asymptomatic or have a mild transient nausea. Mild sedation is the only treatment indicated and there is no need for hospitalization.

Treatment of the Acute Radiation Syndrome

Treatment is most important in the mid-lethal range previously described since it is in this range that careful conservative therapy can greatly increase survival.

Water Balance.—Avoid dehydration by the early use of intravenous solutions of either plain or 5 per cent glucose in water or electrolytes. These should be given without hesitation at the first sign of clinical indication. Strict asepsis should be mandatory in all intravenous administrations given to patients following radiation injury due to the marked susceptibility to infection. Meticulous preparation of the skin site and sterile technique is imperative. In most cases a continuous drip system should be instituted to avoid repeated trauma to the veins.

Electrolyte Balance.—The administration of solutions of sodium and chloride with some added calcium should be given at the first hint of clinical deficiency. Administration of potassium should be avoided due to the tendency of these patients to develop hyperpotassemia. The clinical condition of the patient and the severity of the G.I. symptomatology will give one a fairly good estimation of the need of electrolytes.

Protein Balance.—Protein depletion in later stages of the radiation syndrome, especially in cases of severe diarrhea of long standing, can be combated with administration of blood plasma which will supply 50 to 60 grams of protein per 1000 cc. Also, it is well to remember that as much as 250 calories are present in 1000 cc of plasma. Continued administration of plasma is undesirable since it decreases the red cell production and there is the ever present danger of serum hepatitis; therefore, the plasma should be used only when strong clinical indications are evident and used especially sparingly in cases of mass disaster since a shortage of plasma would no doubt be very acute. The overall maintenance of nutritional state is somewhat difficult during the phase of severe nausea, vomiting, and anorexia. All oral intake should be sharply curtailed during the stage when the diarrhea is very severe since the

gastrointestinal tract seems to recover best when put at rest. Forced feeding during this stage of diarrhea seems only to add to the difficulty and may eventually injure the patient. After the gastrointestinal tract has sufficiently recovered, all feedings can be encouraged without danger.

Nausea and Vomiting.—Many preparations are available on the market which will help to relieve this symptom. The most effective of these are:

1. *Pyridoxine:* This is one of the more effective drugs and is usually given in a dose range of 25 to 50 mg. q.i.d. In the more severe cases this can be given intramuscularly; however, most will respond fairly well when given orally.

2. *Pacatal:* This drug is given in doses of 50 mg. q.i.d. and is very effective in controlling nausea and vomiting. It is also an excellent tranquilizer and can be used in lower doses in those who are very anxious or disturbed.

3. *Vesprin:* This drug is given in a dose of 10 to 25 mg. q.i.d. and has proved effective in many cases especially those with a strong psychic overlay.

4. *Sedation:* Adequate sedation with barbiturates and similar agents will prove effective in many of the milder cases.

5. *Antihistaminic drugs:* These can be used in some of the more mild cases to control the transient nausea and vomiting.

Control of the Hemorrhagic Tendency.—Toluidine blue and protamine sulphate have been advocated to control the hemorrhagic tendency occurring during the third to the fifth weeks. The effectiveness of this form of treatment is highly open to question. Avoidance of unnecessary trauma will probably do more to reduce the incidence of hemorrhagic lesions and aid in the patient's recovery. Transfusions of fresh whole blood are probably the only effective treatment in patients with severe hemorrhage.

Control of Anemia and Leukopenia.—Transfusions of whole blood should be given only when necessary, since the availability of the blood in a mass disaster would be limited. Since repeated transfusions tend to supress the recovery of the bone marrow, they should be kept to the necessary minimum and should be used only on those cases who are past the initial stage and have a possibility for recovery, especially if the supply of blood is very short. Bone marrow transplantation is still in the experimental stage but shows indication of possible promise especially in the border-line cases who are able to recover from the initial gastrointestinal insult but show lack of recovery of their bone marrow function. This will probably be most helpful in the high mid-lethal dose range (750-1000 r) the optimal time for the transplant does not seem to be as critical as formerly believed. Very meticulous typing procedures are necessary, and an adequate supply of donors is mandatory. This would, in itself, tend to limit the application of this procedure in the case of mass injury. Much work is being done on this question at present, especially in the treatment of acute leukemias, and further information may be gained from experiments now in progress.

Control of Infections.—Prophylactic use of systemic antibiotics is contraindicated since the emergence of a resistant strain will render the antibiotics used ineffective and produce a disastrous situation. Antibiotics should be used, however, at the slightest clinical sign of infection and the different types of antibiotics should be rotated in persistent infection to avoid the emergence of any resistant strains.

Adrenal Cortical Hormones in Synthetic Steroids.—These are known to have a protective effect on the liver in preventing fatty degeneration which occurs following irradiation injury. They are also of help in preventing the excessive loss of sodium and chloride. They protect against adrenal exhaustion and combat any tendency to shock. Possible disadvantage in their use is the masking of impending systemic infection; however, their use when indicated should definitely be tried.

Protective Substances.—This poses a retrospective problem since most probably little warning will be forthcoming prior to any severe radiation exposure. However, much work is being done at present on protective substances. Whether these materials may prove to be safe and effective, and whether they will be in wide-spread distribution in the near future, is yet to be seen. Actually one of the most important aspects of protection is avoidance of excessive irradiation from fall-out following the atomic disaster. This is not within

the scope of this article, but we refer you to the Civil Defense Technical Bulletin on this subject.

Treatment of Associated Burns and Wounds.—Thorough cleansing of burns and wounds with phisoderm or other hexachlorophine preparations to disinfect the area of burns or lacerations followed by careful debridement and necessary suturing of lacerations is necessary. Careful aseptic technique must be adhered to at all dressing changes. The use of topical antibacterial agents of the type not given systemically (Bacitracin, Polymyxin, Neomycin, Furosin) is advised when needed to control pathogenic bacteria on the skin.

Absolute rest and quiet is perhaps the single measure most important to the welfare of these patients. As one clinician, who had the responsibility of supervising the care of several patients exposed in the mid-lethal range stated, "The most important therapeutic weapon is a club—to be used to keep all the 'experts' away from the patients and prevent 'bleeding the patients to death' for laboratory tests." A conservative approach is the most rewarding.

Summary

1. Hematological and metabolic changes after radiation damage are discussed.

2. The acute radiation syndrome is described and a frame-work is set up for clinical assessment of the degree of damage.

3. The rationale and applications of modes of treatment are presented.

4. Prognosis can be more favorable than formerly supposed if careful *conservative* medical management is carried out.

Bibliography

1. Brucer, Marshall: The acute radiation syndrome (A medical report of Y-12 accident). O.R.I.N.S.-25, USAEC (April) 1959.
2. Medical Aspects of Nuclear Radiation: Fed. Civil Def. Adminis. Training Bulletin 11-24 (July) 1956.
3. Hollander, Alexander: Radiation Biology. Vol. 1. New York: McGraw Hill, 1954.
4. Stoll, Basil A.: New drugs for radiation sickness. Radiology, 68:380-385 (Mar.) 1957.
5. Congdon, C. C.: Experimental treatment of total body irradiation injury. Blood, 12:746-754 (Aug.) 1957.

REGIONAL ORGANIZATION AND PLANNING AND PERIPHERAL COMMUNITY RESPONSIBILITY

(Continued from Page 1611)

of its available resources. In a country in which neighborliness is a rich tradition, anything less than full co-operation between contiguous areas would be a mark of defeat for the values we would defend.

Summary

1. Intensified health mobilization is needed to prepare for possible enemy attack and natural disasters in Michigan. The leadership of physicians is essential.

2. Regional organization for disaster health services is required to provide for the best use of available resources in case of atomic, biologic or chemical warfare or other disasters which could cause area-wide emergency situations. The design for regional effort calls for an organization representative of the best area knowledge of health and medical resources to assess needs and to stimulate preparedness—including plans for use of facilities such as emergency hospital units and training plans and programs.

3. While peripheral or support areas face formidable problems in planning to help care for potential evacuees from target areas and to provide mobile help for such areas, civil defense is based upon co-operative planning to make the best use of what we have. Such joint effort on a regional basis would serve both the cause of civil defense and other programs.

If you are interested in taking part in regional organization of disaster health services in your area, write or call Albert E. Heustis, M.D., State Health Commissioner, Michigan Department of Health, Lansing.

Some Applications of Radioisotopes in Clinical Medicine

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OTHER sections of this JOURNAL'S present issue deal in detail with the sundry public health problems created by the advent of a nuclear age. It seems fitting that brief space should also be allotted to re-emphasis of the multiple uses to which various radioactive products may be put in the field of clinical medicine. Some of these materials are produced in fairly high yield directly from the fission process (e.g., I-131 and Sr-90) and thus can be separated from the other nuclear fuel end products for use in medicine. Other medically useful radioisotopes are produced artificially by exposure of elements to the slow neutron flux of a nuclear chain reactor or "pile." Despite the tremendous increase in isotope production, these materials are still not available to the large bulk of the practicing physicians as there are few hospitals or laboratories with the facilities and trained personnel to adequately supervise radioisotope service. Only a few of these radioactive materials of medical interest will be discussed here, chiefly to emphasize their clinical diagnostic and therapeutic utility against the background of problems relating to protection of large population groups from the potentially harmful long range somatic and genetic effects of fission end products in nuclear fall-out.

Radioactive Iodine—Diagnostic Uses

Radioactive iodine I-131 as indicated is one of the large group of intermediate mass isotopes resulting from the fission reaction. Its decay scheme is complicated, but the principal radiation consists of a beta particle of 0.6 Mev-max. and a gamma photon of 0.37 Mev. The half life of the isotope is eight days. Most of the therapeutic effect of this isotope as an internal irradiation source derives from ionization of the beta particles. The gamma rays, although providing in general 10 per cent or less of tissue ionization, are penetrating and readily detected by external counting techniques, so that localization and quantitative measurements at a distance are facilitated.

For diagnostic purposes the principles relating to the use of isotopes such as I-131 involve determination of the distribution and concentration of the radioactive substance within the body or its constituents after the material has been tagged to some physiologic substance. The isotope in the body will act like its stable congener, but will differ in its being detectable by radioactivity in various phases of metabolism. Most of the diagnostic procedures with I-131, as with other radioactive elements, can be cataloged under the following classifications: (1) metabolic functions; (2) isotope-dilution techniques; (3) tumor localization studies; (4) cardiovascular functions; (5) cytologic tagging methods.

The most important uses of I-131 in clinical diagnostic work include those employed in evaluation of metabolic activities of the thyroid gland. The isotope is admirably adapted to such determinations inasmuch as it is selectively concentrated by the thyroid and is therein synthesized into hormonal substances capable of regulating metabolic functions. Its temporary residence within the thyroid gland parenchyma facilitates uptake measurements at a distance as well as localized counting techniques for evaluation of discontinuities in gland I-131 uptake. It is agreed that most diseases of thyroid can be diagnosed satisfactorily by adequate medical history, physical examination, and basic laboratory work, such as serum cholesterol, and basal metabolic rate determinations. Follow-up evaluation by these tested clinical and laboratory methods is often adequate. However, in a smaller number of cases, the more refined techniques involving use of I-131 are valuable for assay of thyroid function.

The technique most frequently used relates to

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the uptake of I-131 within a certain period which can vary from one to forty-eight hours, the twenty-four hour thyroid gland uptake being the most common in clinical use. The distinction between the euthyroid, the hyperthyroid, and the hypothyroid patient, can often be facilitated by such methods. Uptake studies are most useful in determining which patient with an enlarged nodular thyroid should undergo surgery, for it is known that thyroid neoplasms in general do not concentrate I-131 as well as does surrounding normal thyroid tissue. Further, a nodule which does selectively concentrate I-131 is less likely to represent carcinoma than a so-called "cold" nodule. The examination for substernal extension of an enlarged thyroid or for mediastinal ectopic thyroid tissue is facilitated by the use of this radioactive isotope.

Other techniques also are used in diagnosis of thyroid function. These include the determination of serum protein-bound I-131, as well as assay of urinary or salivary I-131 excretion.

Still other metabolic functions can be assayed by use of I-131 labeled compounds. In the past, many metabolic studies of the gastrointestinal tract have been encumbered by technical difficulties and time consuming laboratory determinations. Through the use of I-131 labeled triolein or oleic acid, absorption studies relating to gastrointestinal function can often be performed more readily and with greater accuracy than would otherwise be attainable.

I-131, in certain convenient chemical forms, is also of value as a tracer in isotope dilution techniques. These determinations resemble well-known dye dilution techniques, in that a foreign substance is added to the tissue space and is assumed to accumulate in that space, its concentration being inversely proportional to the volume of the fluid diluent. The main example of this technique is seen in the use of radio-active iodinated serum albumin (RISA) for measurement of plasma volume. Following intravascular injection of this material, sufficient time is allowed for mixing, and aliquots of plasma are examined after appropriate intervals, short enough to avoid significant escape of material from the vascular compartment. At the present time this is one of the most popular methods of performing plasma volume studies.

I-131 in the form of RISA has also been employed in tumor localization, notably with respect to neoplasms involving the central nervous system. Here use is made of the fact that alterations of the blood-brain barrier due to the presence of neoplasm will frequently permit selective localization of radioactive material at a tumor site. The penetrating gamma ray component of I-131 facilitates external counting following intravenous injection of radioactive material. Techniques utilizing short range beta counting are described in a subsequent section.

Studies of cardiac output and circulation time are also possible using I-131. However, the results of cardiac output studies at present are difficult to express in quantitative terms. Determination of flow rates for peripheral vascular circulation are quite useful in evaluating problems of venous stasis in the extremities. Further, the determination of the circulation in vascular pedicle grafts is feasible by measurement of locally injected I-131 clearance.

Although the diagnostic uses to which I-131 is applied illustrate well the variety and clinical usefulness of isotope detection techniques, brief mention should also be made of clinical uses for other less frequently employed radioactive elements, namely Cr-51 and Fe-59. The former radio-element has been employed to advantage in labeling of both red blood cells and plasma by virtue of its affinity for body protein. Existing techniques permit cytologic tagging of erythrocytes with Cr-51 and thus the determination of red cell mass in blood volume computations by isotope dilution. Erythrocyte survival too has been studied by this method. This method, when compared with the Ashby technique, gives a shorter apparent half life of the red cell but this may be due to a loss of Cr-51 from the erythrocyte even though it remains viable.

The clearance rate of Fe-59 from the plasma following intravenous injection is used in study of various disease states. Such clearance is accelerated in polycythemia, hemolytic anemia, pernicious anemia, leukemia, anemias associated with infection, malignancy, and iron deficiency. A decreased rate of clearance is seen in aplastic anemia. Other techniques evaluating ferrokinetics involve measurement of red blood cell uptake of radioactive iron as well as indirect measurements of tissue uptake in spleen, liver, and bone marrow.

Therapeutic Uses of I-131

In addition to its diagnostic tracer applications, radioiodine has found a prominent place in the therapeutic management of thyrotoxicosis. Most investigators feel that I-131 finds its most effective application in the treatment of classical Graves' disease where diffuse glandular hyperplasia permits relatively uniform uptake of the isotope throughout the gland. Recurrent disease following surgery, hyperthyroidism refractory to preoperative preparation, or medical contraindications to surgical thyroidectomy also are recognized as indications for therapy.

Where these indications are present, age is generally not regarded as a serious deterrent to I-131 therapy despite theoretical objections on the basis of possible carcinogenic effects from ionizing radiation. When other suitable treatment methods are available, most workers prefer to limit isotope therapy of this type to adults beyond the nominal reproductive age, usually 40 to 45 years. Others are liberalizing indications so that almost all adult thyrotoxic patients are considered as candidates for I-131 therapy.

Most physicians prefer surgical attack on nodular goiter, toxic or otherwise, both because these glands may harbor a neoplasm and by virtue of technical difficulties incident to the larger size of such glands and irregular distribution of active tissue therein. Since I-131 is taken up by the fetal thyroid after the first trimester and since the isotope is excreted in breast milk, pregnancy and lactation are regarded as contraindications to I-131 therapy. The value of such treatment in reversing ocular manifestations of Graves' disease has been recently questioned although results of treatment in malignant exophthalmos are at least as good as those reported with other methods.

Dosage determination in treatment of hyperthyroidism has been variously derived. In some instances sophisticated, complex formulae have been advocated based upon uptake of preceding I-131 tracer doses, estimated thyroid gland weight (by palpation) and estimated effective half life of I-131 in the body. The first of these, I-131 tracer uptake, can be determined with satisfactory accuracy, but its relationship to I-131 uptake in any succeeding dose is uncertain. Effective half life determinations are fraught with similar uncertainty. Estimations of thyroid weight by gland palpation have long been recognized as inaccurate even in hands of the most experienced clinical examiners. Further, these formulae, insofar as they attempt to predict tissue ionization from a treatment dose, rely on the assumption that distribution of I-131 is uniform throughout the gland. It is known that this does not obtain even in glands exhibiting the diffuse hyperplasia of classic Graves' disease. Accordingly, most therapists now prefer to derive dosage from simpler calculations, recognizing the inaccuracies present in any currently employed clinical dosage regimen. By any dosage schedule where one undertakes to treat toxic nodular goiter, I-131 dosage requirements may be considerably higher than they are in therapy of Graves' disease.

In general, one attempts to deliver an initial radiation dose to the thyroid sufficient to control the disease process in one treatment. However, divided dosage schedules have been advocated in the past. In any case it is probably unwise to retreat a patient before full effects of a preceding treatment have become manifest. The minimum time for such response is generally recognized as about two months.

In any discussion of radioiodine therapy, mention must be made of its potentialities and limitations in the treatment of thyroid carcinoma. It is agreed that, where possible, thyroid carcinomas are best treated by surgical extirpation. Where such ablation cannot be accomplished or where surgical removal is incomplete, I-131 therapy may be considered if tumor differentiation is sufficient to permit uptake of the isotope in therapeutically effective amounts. Anaplastic cervical lesions with poor uptake are best treated by external roentgen irradiation.

If peripheral metastases are to be considered for I-131 treatment, total ablation of normal cervical thyroid function must be accomplished by surgery, I-131 therapy, or both. Even after destruction of the thyroid only one in seven metastatic thyroid lesions will take up and retain sufficient radioactive material to permit effective therapy by internal irradiation. Methods have been advocated to stimulate uptake in metastatic lesions. These include a period of hypothyroidism after gland ablation, use of anti-thyroid drugs, and parenteral administration of thyroid stimulating hormone. Such methods will cause some metastatic lesions to concentrate iodine, evidently through direct tumor stimulation by pituitary thyrotrophic hormone. Although small areas of functioning metastases may thus be revealed for

diagnostic edification, especially after use of relatively large doses of thyrotrophic hormone followed by large tracers of I-131 (2—100 mc), the therapeutic potential of such grudging tumor uptake is in doubt. Further, evidence has been adduced to indicate that such excitation of tumor uptake may occasionally itself promote growth of the neoplasm and further cellular anaplasia.

Interest in I-131 therapy for intractable heart disease, notably angina pectoris and congestive failure, was stimulated by the work of Blumgart based on earlier studies of surgical thyroid removal or chemotherapeutic thyroid depression in these clinical states. I-131 induced myxedema is not advocated as a lifesaving measure but simply as a worthwhile mode of palliation in the management of these intractable situations. Such therapy is preferably applied to those patients in the group lying in the upper levels of the euthyroid range. Even there dosage must be elevated considerably above that employed in treatment of hyperthyroidism since the normal gland shows less avidity for the isotope than does its hyperfunctioning counterpart.

Medical Applications of P-32—Diagnostic Uses

Radioactive phosphorus P-32 is commonly produced by irradiation of S-32 with thermal neutrons in the pile yielding carrier-free radio-phosphorus, usually distributed as sodium phosphate. The isotope is a pure beta emitter (1.7 Mev max.) with a half life of 14.3 days. While its emission characteristics greatly simplify problems of protection, its detection for diagnostic purposes in tissue is complicated. The maximum range of the phosphorus beta particle in tissue is about 7 mm. and the average about 2 mm. External detection through secondary brehmsstrahlung is rather unsatisfactory both from the standpoint of efficiency and directional qualities. Generally, the detecting instrument must be applied close to the emitting P-32 source.

Radiophosphorus tends to be concentrated selectively in rapidly growing tissue, notably by the nucleoproteins of the cell. This fact is employed to advantage in localization of brain neoplasms at operation through probe counting. The work of Selverstone is outstanding in this regard. Following injection of P-32 intravenously by a number of hours, craniotomy is performed. At surgery localization of tumor tissue is accomplished by direct insertion of a specially designed probe counter into the exposed lesion. The short range of the P-32 beta and the selective uptake of the material by neoplasm facilitate accurate delineation of tumor position and extent of infiltration.

Preferential phosphorus uptake by tumor tissue has also been exploited in diagnosis of ocular neoplasms. Here short distances between the surface of the globe and its contained neoplasm permit use of a detecting device applied directly to the surface of the eye. Some investigators utilize differential counting techniques after many hours while others feel that a maximum differential ratio of counts between tumor and normal sclera is obtained in the first fifteen minutes after injection. The cause of such early concentration is not definitely explained but may arise from increased vascularity of the tumor or alteration in local vascular permeability.

Therapeutic Uses of P-32

From the therapeutic standpoint, P-32 has come to play an important role in the treatment of polycythemia vera. The isotope is usually given intravenously in dosage varying between 3 to 5 mc. depending to some extent on the height of the red count, platelet count, and the patient's weight. Response is not immediate so that often phlebotomy may be necessary to control acute symptoms. Desirability of the latter has been questioned by some since there is some evidence to suggest that decrease of blood volume may predispose to thrombosis, a complication already to be feared in polycythemia. The question of leukemogenesis with P-32 therapy has been repeatedly raised, but there seems to be no conclusive proof that such radiation materially increases the incidence of chronic leukemia. It is known that leukemia often follows polycythemia without prior treatment by ionizing radiation. Indeed, it has been recently noted that various other types of malignancy also exhibit higher incidences in polycythemic individuals, notably renal neoplasms. Most workers feel that the advantages offered by P-32 therapy in polycythemia more than offset the theoretical possibility of increased leukemia incidence.

Radiophosphorus has also been employed in treatment of chronic leukemia. Usually small doses of P-32 are given at one- to twelve-week intervals depending on the particular regimen as well as the clinical and hematologic response. Osgood,* using a continuous "titrated" dosage

schedule, feels that final mean survival time is materially lengthened by such treatment. Other investigators, using an intermittent type of P-32 dosage, report survival after istotope treatment in chronic leukemias to be about equal to that achieved by other conventional methods. In particular, it would appear that patients treated by spray x-ray therapy survive on the average as long as those treated with P-32.

Medical Applications of Co-60—Diagnostic Uses

Cobalt-60 is produced in the atomic reactor by exposure of stable cobalt to the neutron flux. Its half life is 5.3 years and it emits a beta particle as well as two gamma photons, the latter 1.17 and 1.33 Mev, respectively. The energetic character of these gamma rays facilitates quantitative measurement of radioactivity in biological material. Low intensity samples may be measured in a well counter, while larger, more active materials may be measured at a distance with a scintillation counter properly calibrated against a known standard preparation. A variety of forms and specific activities may be obtained depending on the use contemplated.

Diagnostically, Co-60 is employed as a tracer replacement for the one atom of stable cobalt normally present in the vitamin B-12 molecule. Following ingestion of tagged B-12, its absorption may be evaluated by determination of fecal Co-60, external counting of liver radioactivity, or urinary excretion of Co-60 after one or more "flushing" doses of non-radioactive vitamin B-12. Methods of measurement of blood and plasma Co-60 activity have also been devised. Patients with pernicious anemia, lacking intrinsic factor, fail to absorb ingested B-12 as well as do normals having an adequate supply of this factor. The tests described, then, serve to separate these two groups clinically. In actual practice, any test showing evidence of poor B-12 absorption is usually repeated after an interval with the addition of intrinsic factor, in this way to separate vitamin B-12 malabsorption of pernicious anemia from that due to certain other intestinal malabsorption disorders such as sprue or pancreatic disease.

Therapeutic Uses of Co-60

Although a discussion in detail of therapeutic uses of Co-60 would carry us beyond the proper confines of this summary, brief mention should be made of the uses to which Co-60 may be put in teletherapy devices or in intracavitary or interstitial irradiation. Co-60 teletherapy is essentially another form of supervoltage radiation corresponding in physical characteristics to X-rays generated at potentials in the range of 2 to 3 million volts. The advantages of such supervoltage radiation over X-rays generated at potentials in the orthovoltage range (200 kv) include increased skin tolerance, decreased side scatter, higher depth dosage, and decreased bone absorption of the radiant energy.

As a radiation source for interstitial, intracavitary or external mold techniques, Co-60 may be compared favorably with radium. Dosage to tissues using various arrangements of radium sources has been accurately determined from the theoretical standpoint and clinically tested over many years. When allowance is made for the higher radiation output of Co-60 per millicurie as compared to radium, it appears that existing dosage data for the latter may be readily converted for use with Co-60 sources, there being reasonable confidence that the biological effects of the two materials are similar.

Medical Applications of Au-198

Radioactive gold, like cobalt, is produced in the pile by neutron irradiation of the stable parent substance, in this case Au-197. The radioactive daughter product, Au-198, emits principally a powerful beta particle (E-max. 0.97 Mev) and a gamma photon of 0.411 Mev. Its half life is 2.7 days. Most of the therapeutically useful effect is derived from the beta emission with about 90 per cent of ionization therefrom localized to the first millimeter of soft tissue surrounding the active source. Perhaps the isotope's most widely known application relates to the use of colloidal, elemental Au-198 as an intravavitary source of beta irradiation to serosal surfaces, either pleural or peritoneal. The effects of such radiation may produce worthwhile palliation of effusions due to serosal spread of visceral malignancy by reducing the rate of fluid accumulation and hence the need for repeated paracentesis. Its use is not without some hazard inasmuch as the gamma component of radioactive decay, although of little therapeutic value, may irradiate significantly nearby hospital personnel and other patients. It thus may be a source of danger unless safeguards

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Uses of Radioisotopes in Industry

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MANY interesting jobs performed by radioisotopes in the industrial world have their use tied securely to economic considerations. Our purpose here is to discuss some interesting industrial applications, without the burden of economic justification. Because radioisotopes by their nature produce radiation energy, it is possible to classify all applications in terms of what happens to this energy.

In the first classification, this energy is converted into another form which is used to accomplish the desired effect. The second class includes those applications in which the energy is absorbed or shielded to varying degrees and this is the desired effect. The third class, which includes the most varied applications, employs the radioactive specie for the purpose of tracing its path through some process. The objective here is information.

Applications Using Energy Conversion

Industrial applications depend for their success on the ability of the radiation energy to influence physical, chemical and biological processes. One example is the cold sterilization of foods. In this application, high intensity radiation energy, from either Co-60 or fission by-product sources, kill those micro-organisms in food which cause spoilage. This effect is caused by strong ionization produced by the penetrating radiation energy. Exemplifying this successful application is the progress made in preventing potato sprouting and increasing their storage life without producing undesirable side effects of taste, color, or texture changes. Radiation levels for this effort vary, but one of the first research units at the University of Michigan employs a kilocurie source of Co-60.

Luminescence can be induced in phosphors by the use of suitable beta emitting isotopes. This phenomenon is probably best known from the application to "glow in the dark" clock dials. Originally the glow process was sustained by using naturally radioactive radium isotopes. But man-made radioisotopes are more plentiful than radium and allow a longer useful life for the phosphor. Radiation from the radioisotope is converted to visible light energy by their interaction with the phosphor material. This application has been extended from its original limited use on clock and watch dials to include lettering on signs, coatings for fire alarm buttons located in dark places, door handles, and a variety of other objects which require easy recognition under adverse lighting conditions.

Improved polymer products have been developed using high energy radiation to induce cross-linking of the molecules. Particular success is evidenced by superior low temperature properties of plastic materials given the radiation treatment. The strong ionizing force of radiation energy from selected isotope sources can cleave the molecular links and induce preferred recombinations. In chemical research activities, the use of ionizing radiation to initiate and sustain chemical reaction is assuming more serious aspects. At first the phenomenon was regarded as novel and interesting, but not of commercial importance. The increasing sales of particle accelerators and kilocurie sources to industrial research units during the past few years will bear witness to the future importance of this process in chemical manufacturing.

Important progress in rubber research, processes which are akin to those in polymer chemistry, also present favorable evidence of the important role ionizing radiation will play in this giant American industry. But, as in other chemical applications, the use of radioisotopes to provide this radiation energy, is challenged by development of improved machines which also produce ionizing radiation. This competitive race highlights the advantages of radiation chemistry techniques and will serve to increase its use as a commercial process.

Industrial uses of radioisotopes in past years has been spearheaded by applications in the petroleum industry. From uses in well logging, refinery processes and product development re-

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search radiation energy is proving its commercial worth.

To determine the presence of certain elements in oil well bore-holes, the geologist can use a small neutron source, followed by a suitable detector which is guided down the drilled hole. The neutron source activates the mineral deposits as it passes and the small detector then sends signals up the cable and into spectrometer equipment. Analysis of the detected signal provides information on the structure and mineral type of the substrate along the bore-hole wall.

Applications Using Energy Absorption

Useful instruments based upon the ability of matter to absorb radiation provide improved quality control of metal castings, rolled metal sheet and plastic film. Liquid level indicators using radioisotopes are simple and efficient devices which also depend upon the radiation absorption characteristics of materials. In the field of industrial radiography, radioisotopes can provide the radiation energy in those cases where X-ray machines are not suitable.

Beta gaging, the use of beta radiation to determine and control the thickness of thinly rolled materials, is an application which finds favor in a variety of industrial operations. A beta-ray source, usually strontium-90, is supported on one side of the moving sheet material. A sensitive detector is located on the opposite side of the material. As the thickness of the material varies, the observed counting rate will vary inversely. The thicker the sheet material becomes, the less the count rate. It is a relatively simple procedure to gang the beta-gage with the device controlling material thickness and derive an automatic thickness control. Because the beta rays are very sensitive to shielding effects of the material, quality control on thickness variation is improved to the order of millionths of an inch. A modified application is used to control the tobacco density in cigarettes.

Related to the beta gage is another device, similar in operation but used to indicate liquid level on large storage tanks. It consists of a radiation source, usually a colimated gamma ray emitter, located on one side of the tank, and a detector on the opposite outside of the tank. As the liquid level rises in the tank, it reaches the height where the gage is located. At this height, the liquid in the tank acts as a shield for the gamma rays and the count at the detector decreases. This decrease in signal from the detector can be used electronically to automatically close inlet valves. The liquid level gage can be used to keep process tanks at a given liquid level during operation. The advantages of this type of gage rests primarily on the fact that it can permit level changes simply by moving the source and detector up or down on the tank. Hence it can be used to determine where the top of the liquid is by searching up and down the side of a tank. In multi-phase pipe lines, this gage can be used to indicate when the gas-liquid interface passes a given point.

Applications Using Energy as Tracers

One of the most versatile applications for radioisotopes is in tracer studies. Here the immediate emphasis is on information. Radiation from the isotope is observed for location and quantity. Hence the radiation becomes a convenient tool for probing purposes in such broad fields as basic research, product development, and process control. As a research tool, the radioisotopes are making their most important contribution in the advancement of scientific work. To name a few, isotopes have been beneficially used to study the solid diffusion of one metal into another at the surface of contact, to determine the direction and quantity of fluid flowing in a processing stream, to analyze a specific compound for the presence of trace impurities, to determine the rate of wear of piston rings while the engine is operating, and to determine the loss or degradation of a product while it is in storage.

Cursory observation of the many applications of radioisotopes as trace materials may cause one to wonder why their use has been preferred to other time-tested methods. The answer is, in general, an easy one. It is related directly to the higher order of detection sensitivity which can be utilized. For example, in piston ring wear application, the wear rate which can be conveniently observed is the order of a few micro-grams of material per hour. Contrast this with the conventional method in which the weight loss must be the order of milligrams to provide the same accuracy. In other words, the radioactive method is 1,000 times more sensitive. Of course, all applications do not have this same dramatic advantage, but the benefits are sufficiently attractive

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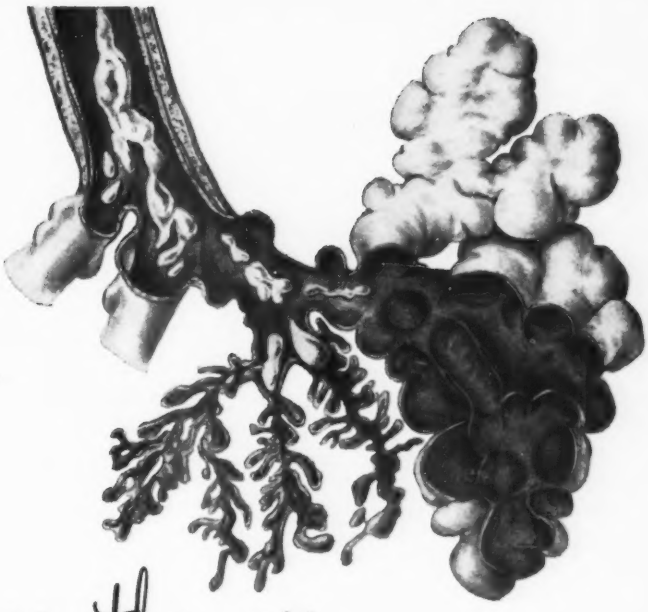

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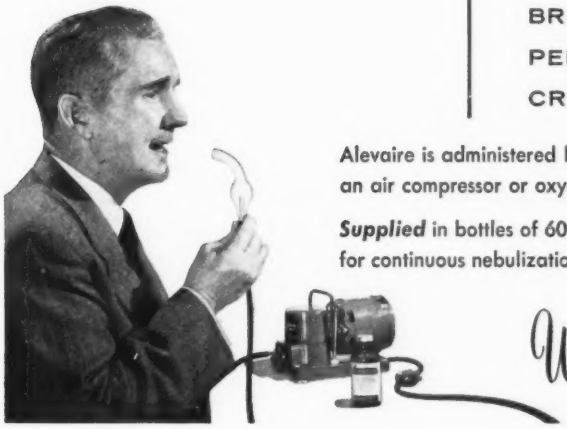

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Supplied in bottles of 60 cc. for intermittent and 500 cc. for continuous nebulization.

Winthrop LABORATORIES
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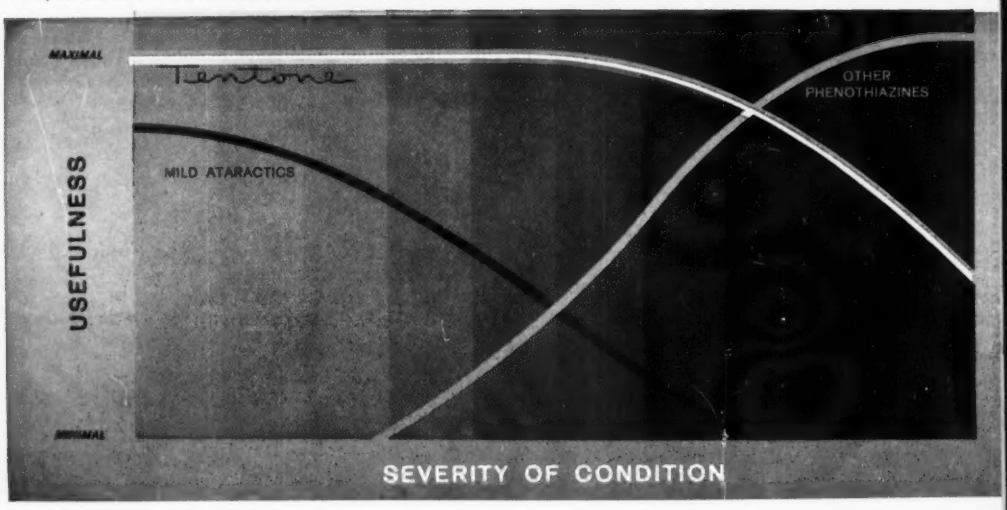
Alevaire, trademark reg. U.S. Pat. Off.

new...highly effective tranquilizer

Comparison of TENTONE usefulness



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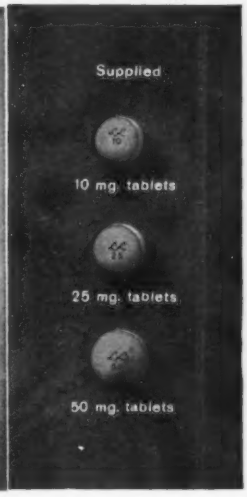


C. A. Conshus, M.D., Says . . .

If Molly the model had
knowed

That that wee little lump
was a node

She would not have
neglected

To have it inspected

Till into a cancer it growed.

C. A. Conshus will tell you
it's best

Not to pass up a lump in
your breast.

Though it may be benign,

It's a clear warning sign,

Get your doctor to give it
a test.

POINT - Breast

DANGER SIGNAL - Any thickening in the breast or elsewhere.

Limericks by Sydney B. Carpender—Drawings by Robert Toombs.
Reprinted from the *Pennsylvania Medical Journal*, November 1957-October 1958. By permission of the Commission on Cancer, The Medical Society of the State of Pennsylvania and the American Cancer Society, Pennsylvania Division, Inc.

A Report on Federal Emergency Hospitals and Medical Supplies

George Moore, M.D.
Battle Creek, Michigan

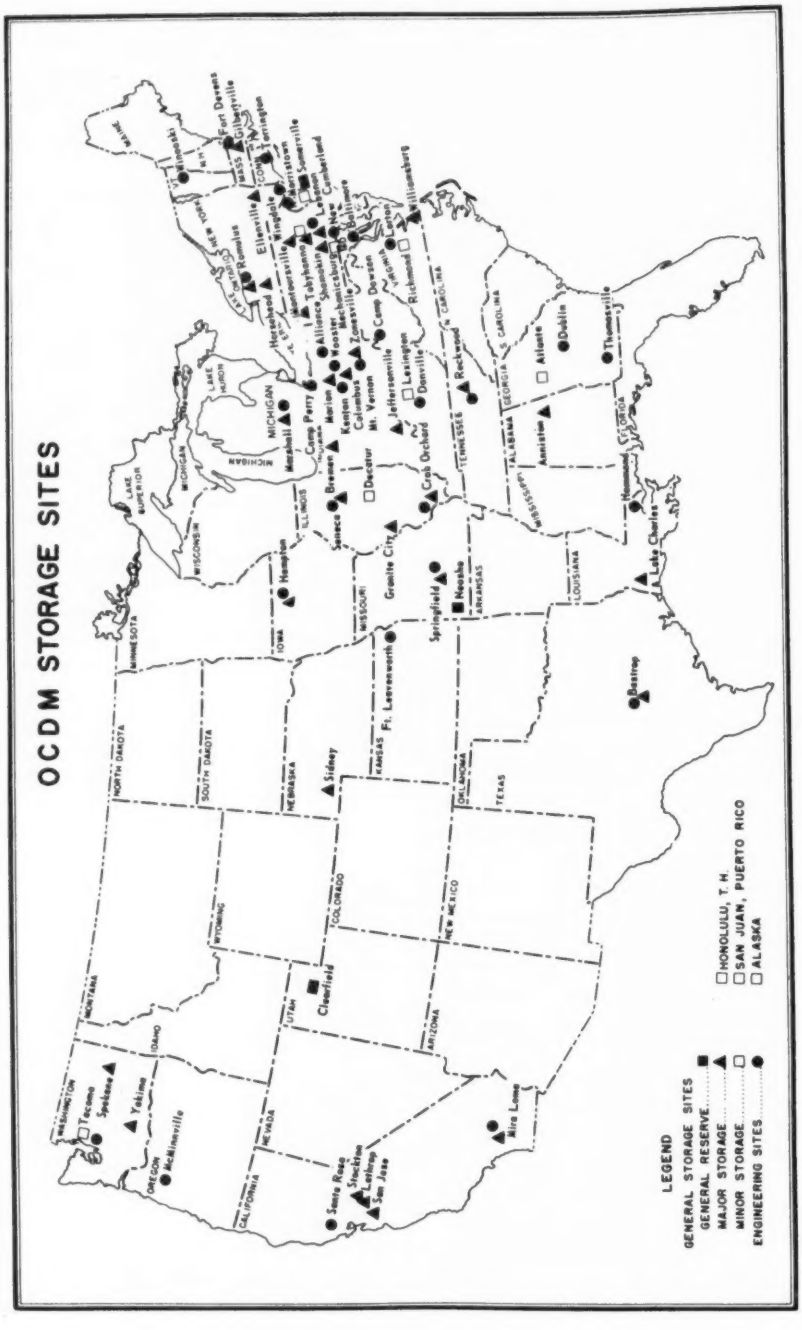
In all of the United States wars from the Revolution through World War II a total of 1,106,552 soldiers were injured. Federal planning estimated 5,000,000 surviving casualties from a single nuclear attack on this nation a few years ago, and present estimates exceed this figure many times.

The Casualty Care Program was based originally on the nominal atomic bomb of the pre-thermonuclear era. Emphasis was centered on life-saving techniques applied to casualties injured primarily by blast and heat. First Aid Stations were to be set up as close as possible to the devastated areas and casualties would be transported to the nearest existing hospital or to an improvised hospital moved to and set up in a preselected building on the damage or fallout periphery. The Office of Civil and Defense Mobilization (OCDM) contributed 50 per cent of the cost of the first aid stations under the Federal Contributions Program. The 200-bed Civil Defense Emergency Hospital (CDEH) had as its prototype the 60-bed Mobile Army Surgical Hospital unit adapted to civilian needs. This hospital unit was initially offered to the states on a 50 per cent matching funds basis, but so few were absorbed that complete units were made available on loan for training purposes. The present Civil Defense Emergency Hospital, the result of continuous improvement since 1952, consists of 367 cases, weighs 24,000 pounds and can be transported in one moving van. The unit is packed for long-term storage and offers all items essential to a 200-bed general hospital. Generators, gasoline lanterns, water pumps, and battery-operated surgical lamps lend self-sufficiency to the hospital in case of normal power failure. Each unit costs OCDM over $26,000.

The improvised hospital under the early atomic concept was to be stored in State or Federal warehouses for issue as needed. The advent of the larger thermonuclear weapons with their greatly increased areas of destruction, with large areas of fallout, and with widespread interruptions of transportation and communication indicated the need for a new approach to the problem of making the new Civil Defense Emergency Hospitals available when and where they would be needed. The answer to the problem, of course, is prepositioning on or near the site where the facility is to be used, under agreement with the States and cities through the OCDM regional office for proper storage and maintenance.

The great majority of existing hospital beds are normally located in designated target areas, thus the Civil Defense Emergency Hospitals which are strategically located in the support areas, take on a much more permanent character. Utilization is planned for an indefinite period. Eventual care given in these hospitals must be broad and definitive for the long-range problems of the survivors and for modern weapons effects. Thermonuclear bombs detonated on or near the surface of the ground generate radioactive fallout particles which may be carried tremendous distances by high altitude winds. In a holocaust of nuclear war, intense ionizing radiations emitted both from the nuclear weapon burst, as well as from drifting fallout, will make immediate rescue operations impractical. Until radiation intensities are known and until radiation decays or drops to a "safe reading," the surviving population must remain under cover, even if injured. Emphasis is being placed more and more on the need for a maximum capability of self-help. OCDM urges that in the best interest of survival, the public will provide family fallout shelters and store provisions and water for two weeks. At least one member of each family should be trained in first aid and home nursing in order to offer life-saving measures to family and neighbors. Organized medical care may not be available in contaminated areas for hours and even days. It is considered that in highly radioactive areas close to the bomb bursts, casualties who have not taken shelter underground will be lost. In view of these new planning concepts, the

Dr. Moore is Medical Officer, Region 4, Office of Civil and Defense Mobilization.


OCDM STORAGE SITES
LEGEND
GENERAL STORAGE SITES
GENERAL RESERVE
MAJOR STORAGE
MINOR STORAGE
ENGINEERING SITES
HONOLULU, T. H.
SAN JUAN, PUERTO RICO
ALASKA
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
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San Jose
Reno Lone
Cheyenne
Sidney
Ft. Leavenworth
Granite City
Springfield
Neosho
Camp Perry
Marion
Kenton
Columbus
Mt. Vernon
Mansfield
Zanesville
Alliance
Youngstown
Tobyhanna
Honesdale
Harrisburg
Shamokin
Lewistown
Hazelhood
Monroeville
Ellwyville
Ringgold
Romulus
Camp Dawson
Jeffersonville
Lexington
Danville
Richmond
Rockwood
Baltimore
New Cumberland
Lester
Williamsburg
Fort Devens
Gilbertville
Lexington
Somerville
Wilmington
Dublin
Thomasville
Hammond
Lake Charles
Bastrop
Amarillo
Atlanta
Decatur
Camp Atterbury
Crane Orchard
Brazil
Seneca
Hampton

CDEH Program is undergoing a change in emphasis from casualty care to medical care of the surviving population. The future CDEH will contain additional items for long-term medical care, specialization equipment and outpatient clinic supplies.

To provide for the care of casualties, OCDM is planning a new type of facility, the Emergency Treatment Station, as a supplement to the former first aid station. The proposed unit is basically an emergency hospital stripped of non-essentials for its newer role of providing emergency life-saving measures and holding casualties for transfer to definitive care installations.

Expansion Units to convert a treatment station into a CDEH, Specialty Units and four types of Replenishment Units are considered items of our Federal stockpile in the future.

As of May 8, 1959, 1,383 CDEH had been packaged and delivered to storage sites by OCDM. About one-third of these are in OCDM warehouses located at strategic points throughout the country. Over two-thirds, or 989 units, have been prepositioned in the States. Agreements for 45 additional units were also being processed in Battle Creek, Michigan, on May 8. Pennsylvania, with 156 CDEH, has the largest number of prepositioned hospitals. Michigan has placed fifty-seven units, of which eighteen are located in the Detroit support area. The total number of hospitals purchased by OCDM to date is 1,932.

During Operation Alert 1958, when a great many existing hospital facilities in target cities were theoretically destroyed, prepositioned hospitals represented the bastion of available medical care facilities. In Region 4, which comprises the States of Michigan, Indiana, Illinois, Wisconsin, and Missouri, 276,000 existing hospital beds were listed before D-Day of 1958. Blast and heat from nuclear weapons destroyed 115,000 beds in a few seconds. An additional 90,000 beds were undamaged physically but could not be used immediately due to hazardous radiation. Thus, at 24 hours post-attack, only 70,000 existing hospital beds could have been available for over 3,000,000 seriously injured. At thirty days post-attack, when most radiation had decayed, the number of usable existing hospital beds reached 162,000.

At the time of simulated attack in 1958, Region 4 had 145 200-bed CDEH placed in support areas representing a total of 29,000 beds. Blast and thermal effects destroyed only four CDEH—attesting to the value of dispersal in non-target areas. Intense fallout prevented operational use of some prepositioned units until fourteen days after attack, but the addition of Federally stockpiled CDEH to the usable prepositioned units had given the Region an additional 68,000 beds at this critical time. At ninety days post-attack, when all surviving hospital beds and CDEH could be used and their facilities expanded, the total number of hospital beds of all types was 558,000. The number of injured requiring hospitalization at ninety days was estimated at one million and a half. The importance of the prepositioned hospital program, now and in the future, is obvious.

Since the prepositioned hospital is packed for long-term storage and must remain stored in its original packing, 100 CDEH are allocated from the current OCDM stockpile for the purpose of training and familiarization of professional medical and auxiliary personnel.—Sixty-seven units are now on loan to the States, of which 17 are in use within OCDM Region 4. Over 9,000 medical personnel have been trained in Region 4, and 278,000 viewers have seen the hospitals displayed. OCDM contemplates a smaller, more compact unit for training which will be easier to transport and assemble. Present training hospitals have generally not been used in sparsely populated areas.

The CDEH Program has given rise to several misunderstandings which will now be considered.

Use of CDEH in Major Disasters.—Article VIII of the CDEH storage agreement is specific as to the conditions of use. A hospital unit may be made available to a State or political subdivision in a *major* disaster as defined in the Federal Disaster Act of 1950 (PL 875, 81st Congress), under terms and conditions approved by the OCDM Regional Director.

A vital factor usually overlooked or ignored is that all required supplies which are available to the State through its own resources or from the American National Red Cross, must first be exhausted.

The emergency hospitals, moreover, are planned as general hospital units. They are austere in equipment and supply, and persons needing hospitalization in even a major natural disaster would get better care by evacuation to established hospitals nearby. The time required to unpack, assemble and staff a CDEH is another point. We

consider that indiscriminate use of supplies from prepositioned hospitals is an unwise reduction of the national emergency stockpile.

Replacement of Perishable Items in CDEH.—Included in this category are: antibiotics, insulin, blood volume expanders, blood typing sera and radiographic paper.

OCDM has always encouraged States to make local arrangements for rotation of antibiotics where a satisfactory procedure can be worked out. Shelf-life periods for antibiotics vary in range from two to five years. Most of these items have been laboratory re-tested by the National Institutes of Health and the Food and Drug Administration after expiration date and found to be fully potent and safe. OCDM plans to replace these items every five years on specific request by a State where rotation by local hospital custodians has not been feasible. Approximately $2,000,000 is being spent this year for this program and the first replacements will be made in 1960.

Insulin, when stored under refrigeration, is quite stable according to reports from the Food and Drug Administration and this item will be replaced every five years. In the same manner, blood grouping sera will be replaced.

The manufacturer will not guarantee radiographic paper for longer than nine months. However, we have found that its useful shelf life can be more than tripled if kept in refrigerated storage. Current research indicates that radiographic paper with a probable ten-year shelf life is a possibility.

Acquisition of Narcotics During a Civil Defense Emergency.—Because of Bureau of Narcotics regulations, narcotics have never been approved for procurement under the Federal Contributions Program nor have they been procured for the medical stockpile. CDEH, of course, do not contain narcotics.

Federal reserves of narcotics now held by General Services Administration and earmarked for Civil Defense emergencies total approximately 40,000,000 doses. Further studies are being made concerning narcotics in the emergency hospital listing.

Unpacking the Generator.—The generator is packed for long-term storage and should not be unpacked unless the Humidity Indicator Card indicates an unsafe storage condition. Several instances have occurred where local hospital custodians have unpacked the generator for no other reason than that they were convinced it would not work. Under these conditions, the State is required to pay for the cost of repackaging, approximately $100.

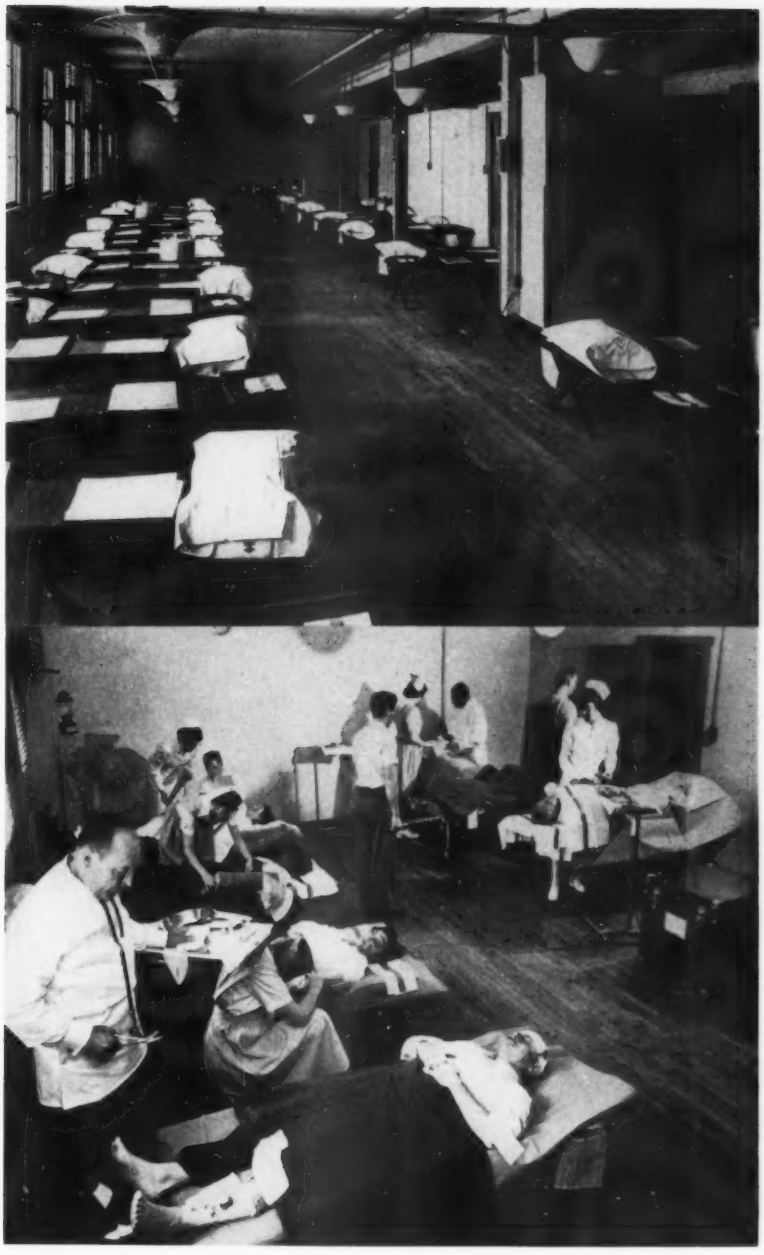
The Civil Defense Medical Supplies Program is divided into two categories: (1) the Federal Contributions Program; (2) the Federal Stockpile Program.

The Federal Contributions Program is based on the principle that local communities will obtain medical supplies necessary for the first two weeks or more after a national emergency to start treatment of casualties. Supplies under this program are matched dollar for dollar with Federal funds, but title to the supplies is vested in the participating States. The total overall value of the medical Contributions Program is estimated at $87,000,000.

The Federal Stockpile Program is concerned chiefly with the procurement and stockpiling of medical and related supplies to serve as back-up to those supplies now being stored in the local communities. The Federal Stockpile Program has been geared to the care of over 5,000,000 surviving casualties for a period of three weeks. When stockpiling operations are resumed, the new goals will be many times this figure.

Through the Fiscal Year 1957, approximately $219,000,000 was expended for medical supplies which included all essential items necessary for care of casualties. These supplies are under Federal control, and at present close to $200,000,000 worth of medical items have been delivered to 43 OCDM depots strategically located throughout the United States and to other locations such as the prepositioning sites in local communities. No new procurement of strictly medical items was conducted from 1958 to 1959 since no money was appropriated for the purpose. In 1960, stockpile operations will probably be limited to reworking the outdated plasma in stockpile.

Of the items procured so far that could be classified as deteriorating, the antibiotics pose the principal problem. There are some several million dollars' worth of antibiotics in stockpile at this time. Present dating periods, however, are such that most are usable for several years hence. Each year more data is gathered on the stability of these antibiotics and periodically their dates have been extended. A good example of this is Chloramphen-



ONE OF THE WARDS IN THE 200-BED CDEH

icol, on which the dating has been periodically increased until it is now five years. OCDM is exhausting all means of rotating its present stockpile of antibiotics with existing Federal users and we have been successful in securing several rotation contracts with manufacturers in non-target areas. Of the antibiotics now in stockpile, about 25 per cent are presently covered by rotation contracts. In addition, OCDM now has contracts with manufacturers for smallpox vaccine, tetanus antitoxin and many other biologicals, under which such manufacturers store the material in bulk and rotate the stock, if possible.

The Office of Civil and Defense Mobilization has been very fortunate in securing the services of the Military Medical Supply Agency for the procurement of all its medical items. This Agency has done an excellent job in making civil defense appropriations go as far as possible; in fact, much further than expected. This, of course, is due to the fact that OCDM procurement requirements have been pooled with the Armed Services requirements, and the increased quantities have resulted in reduction of prices. In the Fiscal Years 1952 and 1953, close to $12,000,000 was saved on estimated prices. These savings were turned into additional procurement of needed items for the stockpile. In the 1953 procurement program, OCDM was able to start 100 Emergency Hospitals with the savings effected. In the Fiscal Years 1954 and 1955, there were additional savings of several millions of dollars to allow the procurement of 100 Emergency Hospitals not originally planned for, over half a million units of dextran, several million extra litres of intravenous solutions, several thousand radiological instruments, and additional vaccines and antitoxins. In 1956, over $3,000,000 was saved to allow for the procurement of 100 additional hospitals.

Warehouses are of three types: small capacity, placed on a calculated risk basis in or near principal cities, larger ones located farther out from

REPRESENTATIVE HEALTH SUPPLIES AND EQUIPMENT PROCURED FOR THE OFFICE OF CIVIL AND DEFENSE MEDICAL RESERVES PROGRAM THROUGH FISCAL YEAR 1957

	Quantities
A. Basic back-up medical and surgical supplies (drugs, dressings, surgical instruments) to serve as back-up for first aid stations, emergency and existing hospitals, based on casualties that can be cared for over a three-week period. Examples of the major items in this category are as follows:	
1. Penicillin in Oil, 400,000 units per cc., 1 cc. doses	17,952,050
2. Streptomycin, 1 Gm. (Bottles)	336,800
3. Aureomycin Capsules, 250 mg., 100s (Bottles)	168,415
4. Chloramphenicol Capsules, 250 mg., 100s (Bottles)	168,403
5. Terramycin Capsules and Tablets, 250 mg., 100s (Bottles)	168,457
6. Penicillin G, Crystalline, 1,000,000 units (Bottles)	717,150
7. Aureomycin Hydrochloride, Intravenous (Bottles) 0.1 Gm.	1,771,980
8. Terramycin Hydrochloride, Intravenous (Bottles) 0.25 Gm.	860,400
9. Special Burn Dressings	10,327,500
10. Sulfadiazine Tablets, 0.5 Gm. (7½ gr.), 1,000s (Bottles)	404,256
11. Litters (Straight Pole)	318,752
12. Paper Blankets	1,597,711
13. Cots	425,000
14. Blankets, Wool	1,300,696
15. Hemostatic Forceps	1,275,120
16. Splints	2,071,220
B. Hospitals, 200-Bed Emergency (293 items per unit)	1,932
C. Blood and Shock Therapy Program Equipment	
1. Blood Collecting Sets (includes all necessary equipment)	3,187,674
2. Container, Blood Shipping	157,500
3. Plasma	1,307,808
4. Serum, Albumin, Human	294,166
5. Dextran Injection	3,475,000
6. P.V.P. (Polyvinylpyrrolidone Injection)	1,200,000
7. Intravenous Solutions (Litres)	19,618,974
D. Radiological Equipment	
1. Radiological Survey Meters	272,533
2. Radiological Dosimeters (Self-reading and non-self-reading)	426,500
3. Radiological Dosimeter Charges	38,937
4. Radiological Dosimeter Readers	160
E. Biological and Chemical Warfare Defense Supplies	
1. Smallpox Vaccine (doses)	40,000,000
2. Tetanus Antitoxin (Therapeutic doses)	250,000
3. Gas Gangrene Antitoxin (Therapeutic doses)	62,500
4. Diphtheria Antitoxin (Therapeutic doses)	200,000
5. Yellow Fever Vaccine (doses)	4,000,000
6. Atropine (2 mg. doses)	5,512,000
7. Gas Masks (Organizational)	42,000
8. Detection Kits	5,000
F. Sanitation Supplies	
1. Sprayers and Dusters	14,000
2. Chlorine Comparators	1,400
3. Food Testing and Water Testing Kits	1,653
4. Water Purification Tablets, 50s	1,001,280

AN OZARK CAVE IS USED FOR STOCKPILING OCDM SUPPLIES

likely target areas, and depot-type warehouses located at still greater distances from probable targets. A former limestone mine at Neosho, Missouri, for instance, has 2,500 tons of supplies stored safely underground. Included are 200 Emergency Hospitals.

Civil Defense programs are subjected to continuous review and evaluation in relation not only to changing weapons effects, but also to reseach and development that might in any way improve capabilities. Furthermore, research and development is encouraged to fill gaps in our knowledge as divulged by continuous study. Particular emphasis is placed upon radiobiology. Other areas of interest include medical care and treatment, preventive medicine and public health, medical and health personnel education and utilization and nutrition. The OCDM contract with the American Medical Association, signed on July 26, 1957, is a most important activity in this respect. The scope of this study is to develop and recommend the planning, training, and operational organization needed as a basis for a national emergency medical care plan.

Federal support for the Nation's health and medical care program has been assigned to the Public Health Service. If funds are appropriated for 1960, a new era of implementation for health services in civil defense will be inaugurated.

Proper preparation is our greatest deterrent against an attack. However, if we are attacked, total mobilization of our personnel, resources, facilities, and equipment is essential to national survival. Life as we know it today may not return again for a considerable period of time. But the better prepared we are, the better will be the assurance that life in the true American way will return in a reasonable period. In such an emergency, the wants and desires of the few must give way to the good of the many, and all efforts must be pointed toward one objective—national survival.

SOME APPLICATIONS OF RADIOISOTOPES IN CLINICAL MEDICINE

(Continued from Page 1632)

are employed to produce attenuation of the radiation through use of proper shielding and interposition of safe distances between the patient undergoing treatment and the other hospital inhabitants.

Other uses to which colloidal Au-198 has been put can be exemplified in the treatment of certain forms of prostatic carcinoma. Patients in good general condition, having locally inoperable carcinoma of the prostate without evidence of distant metastases or elevation of phosphatase are candidates for such therapy. The procedure entails injection of Au-198 directly into tumor substance and prostatic tissue in adjacent fascial compartments. Recently it has been the practice of Flocks and his coworkers to remove any large gland masses before instillation of the radioactive material into the prostatic bed. Grossly involved lymph nodes, too, are better removed, this followed by injection of Au-198 into the areolar tissue of the dissection area. The Iowa group is enthusiastic over results of such treatment. They feel that five-year survival rates in this group of carcinoma patients can be materially increased and that untoward local radiation sequellae can be minimized by proper injection techniques.

Summary

In the foregoing paragraphs we have attempted to illustrate a number of the more important applications of radioisotopes to the field of medicine. Many other specific uses exist, and it is to be expected that still other applications of these materials will emerge from future investigative work, both in the clinic and the experimental laboratory.

The Civil Defense Role of the Hospital

Ronald Yaw, F.A.C.H.A.
Grand Rapids, Michigan

FOR purposes of this paper, a hospital will be considered a social entity where dietitians, maids, physicians, trustees, nurses, electricians, plus some thirty or forty other vocations, professions and trades all contribute to the recovery of sick and injured people.

It is considered desirable to thus define a hospital because of the probably natural tendency of groups within the hospital, stimulated by organizations outside the hospital, to set up plans which involve the entire hospital.

Probably the greatest single impetus to the development of disaster planning in hospitals has been the action of the Joint Commission on the Accreditation of Hospitals in making such plans mandatory. Obviously this has not resulted in ideal plans in every hospital. However, it has resulted in some planning in all accredited hospitals. The American Hospital Association has also shown strong leadership in the field of disaster planning. Over 100 articles have appeared in major hospital journals in the past year. Unfortunately, almost without exception, these are case reports where a hospital did have a plan and handled a disaster fairly well. Of real service would be an objective report of a hospital flooded with casualties where no advance planning had been done.

Actually the role of a hospital in Civil Defense has five separate aspects: (1) internal problems; (2) medical community problems; (3) OCDM official problems; (4) relocation problems; (5) constant revision and review problems.

The principal internal problems are those of attitudes, people and things. The attitude problem is one of creating in ourselves the firm conviction that disaster preparedness is a normal part of our community responsibility, just as normal as a preoperative urinalysis or sterilizing instruments. Unless and until this attitude is created, at least among a cadre of key people, the other problems are simply overwhelming.

Mr. Yaw is Director, Blodgett Memorial Hospital, Grand Rapids, Michigan, and a Member of the Committee on National Defense, MSMS.

Perhaps a good place to start in the "people" department is with an inventory. The problem here is more one of utilization than procurement. All segments of the hospital need to be instructed and assigned. For example, there are, in many hospitals, three to four or more highly motivated, intelligent members of Women's Auxiliaries for every patient in the hospital. Latent abilities must be searched out and made ready for use. Authority and normal lines of authority need to be reviewed. In most instances the channels of authority that work in every day usage will best serve in a disaster. Superimposed paper hierarchies are dangerous. Delegation of authority should be clear. Predelegation af authority is entirely possible and desirable. Physicians, who have been oriented to the problem, can review standard medical practices and decide in advance what decisions can be delegated to nurses, technicians and others. Physicians need to study and predelegate authority to each other in such areas as treatment simplification, moving and discharge of patients.

While medical decisions should be made by physicians, overall operating decisions should be made by a group representative of all sections of the hospital. Personnel bottlenecks in such areas as blood typing must be identified and solved. Professional personnel should be allotted by time as well as by position, many being needed in reserve status. The final internal problem of "things" is a matter of selective stock piling. On an April day last year an eighty-five bed Indiana Hospital with 86 patients found itself one Saturday afternoon with nearly 500 violently nauseated teen age girls being brought to the hospital by ambulance, truck and bus. One of the stockpiled disaster items was a quantity of large paper sacks for patients clothing. This homely, inexpensive item was a large factor in handling a real problem. X-Ray films, analgesics, burn dressings, et cetera, can easily be stockpiled by simply carrying an extra supply in normal inventory. The amount of stockpiling should be governed, in part, by the availability of supplies through other sources.

There are two other noteworthy aspects of the supply problem. Hospitals tend to become quite self-reliant in the matter of supply due to the fact that suppliers and vendors just aren't around nights and Sundays. It is surprising to find the variety and amount of usable items that have been stored away by nonmedical elements of Civil Defense. The other aspect is the problem of basic human kindness in an emergency situation. Trucks of unrequested food and supplies will arrive. The people to unload them and the very space the trucks take up may be sorely needed for more immediate problems.

The use of ordinary canvas litters for the handling, sorting and treatment of casualties is desirable. The hospital should have immediate access to a large number or else own and store its own supply.

The second major aspect of the hospital's role in Civil Defense is the function of being a part of what might be termed the medical community. No decisions about anything should be made without a full realization of and allowance for the fact that other equally interested groups have an entirely legitimate and laudable interest in disaster planning. Physicians and their organizations carry added heavy responsibilities for non-hospital medical problems. Likewise nursing and other professional groups have plans of their own. A hospital plan should be prepared after a complete understanding of what other groups have done or are doing. The duty of the hospital in these situations is so to conduct itself that it becomes a part of the solution—not just another part of the problem. While the hospital, as a large reservoir of trained people, can and should be cooperative in helping meet the total need, it should not allow itself to be stripped in any one category. One hospital found that every person in its Engineering Department had been given assignments that took them out of the hospital in a disaster.

The third major aspect is liaison and full cooperation with official OCDM bodies. Functions that are well beyond either the means or the control of the hospital must be known and used. The entire fields of communication, transportation, supply, external traffic control, evacuation and relocation are areas in which the hospital has little competence and is almost entirely dependent on others. This is not to imply a "Let George do it" attitude in any of these areas. The hospital must be willing to go all the way in learning about these needs and how to meet them, yet it must not duplicate existing scheduled services. While a hospital cannot fairly expect all civil authorities to neglect other functions, it should clearly make its vital needs known. On the average about three-fifths of the patients in a general hospital, faced with a disaster, can safely be discharged to their homes. This means transportation, transportation means adequate traffic control, and traffic control begins and ends with civil authorities. Traffic control that does not start blocks away from the hospital in all directions is not traffic control, but just a lot of stalled vehicles.

One thing a hospital can and should do is to let its community know about its general plan for disasters. A hospital is less subject to some medical customs than individual physicians. The physician who puts up a sign in his waiting room "I donate six hours a month of my working time to Civil Defense" would get a few sidelong glances in many circles. However, a hospital can and should let its community know that a tiny part of its bills to patients is spent in being prepared against disaster. In fact it has an obligation to reassure the public in this matter. Much of the uncertainty and fatalism in the public mind is due to lack of knowledge as to what has been done. The exposure to knowledge has been great; the understanding gained, small. Hospitals can help official groups in this area by a calm acceptance of responsibility.

The fourth aspect of the hospitals role in Civil Defense is a chilling one. That of removal and relocation if the existing physical plant becomes unusable for any reason. It is in this area that hospitals have done the least. This is possibly due in part to the I-I ratio (Ignorance equals Inertia). Hospitals in general have little knowledge of the prepositioned hospital program. They feel no responsibility for it since no responsibility has been placed on them. The concept of moving patients and personnel, of picking up the pieces and improvising a new hospital unit is totally foreign to many hospital people. The "Training Hospital" program might offer some relief if offered as a hospital training program and not just a public display to impress the taxpayers. More liaison, exchange visits, mutual planning between base site personnel and alternate site personnel is needed. Hospitals through the decades and all over the country have done almost unbelievably good jobs of handling large disasters. Probably

this is due to their daily handling of small disasters and the discipline acquired in the doing. Picking up and moving presents a new, bewildering problem.

The fifth aspect of the hospitals role in Civil Defense is the need for review, practice and revision. A plan that is not revised at regular intervals is of limited value. A plan that has never been tested is of almost no value. With the high attrition rate prevalent among hospital employees, a continuing duty assignment and orientation program is a necessity. While the "all out" spectacular test exercise is worthwhile and dramatic, smaller section tests are more consistent with the normal functioning of a hospital and are highly effective. Some of the hazards are old and remain constant. Some threats, however, are new and require changes in planning. Unfortunately, many writers on disaster, planning quickly, assume the jargon of the professional civil defense workers and one is numbed and confused by terminology. Even at the risk of oversimplification, for the purposes of hospital planning, a burn is a burn, a cut is a cut, hysteria is hysteria and radiation sickness is radiation sickness. The important thing is to be current and ready to handle the patient who got hit by a brick and not to determine whether the propelling agent was labelled A or H or N or calibrated in Kilotons, Megatons or Microtons.

The foregoing five aspects create only a rough outline of the hospitals role. Many essential items are omitted. It is assumed that the work of State and National Hospital associations has or should have, done away with two old outworn attitudes. The "It can't happen here" attitude and the "If it does we can't do anything" attitude. "Anything can happen—we can't do everything, but we can do something," must be our outlook.

In summary, a hospital owes to its community a realistic inventory of its resources. A careful integration of those resources into community planning and, above all, a calm acceptance of disaster preparedness as a normal function of every hospital everywhere.

USES OF RADIOISOTOPES IN INDUSTRY

(Continued from Page 1634)

to warrant the use of radioactive techniques.

Applications of radioisotopes in industry are not restricted to the use of reactor by-products, though most of the examples cited do so. Much can also be done with naturally radioactive materials. More detailed descriptions of these applications may be found in the bibliography that follows.

Bibliography

1. Isotopes, An Eight Year Summary of U. S. Distribution and Utilization. USAEC (Mar.) 1955.
2. Bradford, John R.: Radioisotopes in Industry. New York: Reinhold Publishing Co., 1953.
3. Bleuler, Ernst, and Goldsmith, George J.: Experimental Nucleonics. New York: Rinehart and Company, Inc., 1952.

INCOME TAX RULING

A recent ruling of the Internal Revenue Service made it clear that Medicare payments to doctors must be reported for each tax year if they total $600 or more. Specifically, the ruling is that Blue Cross-Blue Shield plans acting as fiscal administrators in processing Medicare fee claims, shall file a separate Form 1099 with the District Director of Internal Revenue for each physician to whom it makes payments of $600 or more in any one tax year.

Civil Defense and You

Ralph M. Sheehan
Lansing, Michigan

CIVIL DEFENSE is a live problem today, and is of distinct interest to the medical profession—for an effective civil defense program at all levels of government may mean the difference between quick resumption of community life or a disastrously prolonged period of recovery. Rapid recovery can only be assured by an awareness on the part of every individual in America as to his or her "stake" in our national defense. This "awareness need" also has its application to groups. Plans, for example, for the mobilization of our medical resources must include planning for civil defense as well as for more traditional military needs. The same might be said of our industrial capabilities. Actually, the measures taken in and among the medical professions to minimize the effects of attack or natural disaster are basic to assuring continuous production in our industrial plants without which there could be no strong mobilization or recovery action.

The protection of our citizens, our homes, our industrial strength, and our way of life cannot be left to chance. Nor can the responsibility be shifted. America's recovery from a devastating assault would not be automatic. It can only be assured by effective civil defense planning. Leadership today must concern itself with civil defense. That the decisions that effective and basic civil defense plans require are difficult is readily admitted. Yet the expense and inconvenience to which such efforts expose us may well be the most valuable investment we shall ever make in the future of America.

To relate the chain of events within the past decade that has now divided the world into two armed camps is not here required. The forces of totalitarianism are adamant in their determination that their form of government shall prevail throughout the world. The peoples of the free world are even more determined to protect the freedoms which dignify and protect the rights of man. So we find ourselves striving for international peace under the constant threat of war.

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Whether we recognize it or not, the fact is that today the United States faces the greatest problem in its national history—that of providing defense against the increasingly powerful nuclear weapons being developed and stockpiled by possible aggressors. It is unfortunate, but nevertheless true, that a great many people are unwilling to recognize how vulnerable we are to the overwhelming devastation these instruments of destruction are capable of inflicting. It is strange—but true—that there are many who still believe that this country, bounded by two oceans, a polar ice cap, and friendly neighbors, is secure against attack, or they pin their faith on a defense that could never completely stop a full scale enemy attack. We have a false sense of security if we fail to realize that this nation must now reckon with a possible aggressor who has at his command intercontinental bombers and guided missiles, who's every scientific discovery and research project is geared to domination of the world.

Our national security, then, demands a capability for total defense. Nothing less can counter the total offense that is possible. Total defense can only be achieved by supporting our powerful military might with an effective and strong non-military defense.

The mission of civil defense is to protect life and property in the event of attack by measures to prevent, minimize, and repair injury and damage and to mobilize resources and production. Fulfilling this mission will involve every element and unit of government from Federal to local—every profession, every segment of business and industry and, properly, every citizen, every family, in the nation.

Government is placed at the top of the list because it is the key to all successful non-military defense. Meeting emergencies, small or large, natural or man-made, is the responsibility of government. It must keep control and give direction, with competance and assurance, and its emergency service must serve, protect, and lead the people. The effectiveness of your medical planning directly depends on how well government sustains itself.

In a nuclear war, should it come, the objectives of the enemy will be to immobilize as many of our people as possible.

Discussion of the problems confronting health and medical services following an attack by atomic, biological, or chemical warfare, staggers the imagination. The possibility of such an attack indicates the responsibility of the members of the medical, public health, and other interrelated professions to give consideration through research and planning to the problems of mass care and treatment that the citizens of this state would require under such attack conditions.

Perhaps no other professional group is so acutely aware of the untold benefits that can accrue to the well-being of mankind through study, research, and planning. Admittedly, no other group will have a more important role to play in writing the history of our ability to survive, recover, and retaliate than those who make up the medical and health professions of this state.

Perhaps, at best, for a period of time following an attack, the hospitals, laboratories, and technical equipment, as we know it now, will be replaced with partially destroyed buildings, broken gas and water mains, and with the most meager equipment with which to work. Working under these conditions, obviously, will demand raw courage from the professional and the patient alike. That this may be the lot of some seems inevitable. That it need not be the fate of many can be the result of preparedness through planning.

Some say there is nothing that we can do now—that the range of possibility is so wide and the ensuing chaos would be so overwhelming that no advanced thinking or preparation would be of any avail. Certainly, the possibility of nuclear, biological, and chemical warfare is frightening and the devastation it might bring would be horrible. But we are convinced that with government (at all levels) recognizing and acting on its civil defense responsibilities, public and private preparedness can make a difference—in fact, the difference between national survival or annihilation.

Certainly these are not pleasant observations to make—yet failure to recognize that the "tomorrows" for America are difficult ones would be to deny the existence of the struggle going on at this very moment which involves the proposition that either man is a gift of the Supreme Being, with a right to individual freedom, or that he is a pawn of the State, existing only for material reason.

Most readers of these words have lived through the era that has seen the writings of Marx, on Communism, change from an abstract theory into violent fact. Communism claims unto itself the sole right to interpret the destiny of man, rejects any rival, and holds that it is its exclusive right to chart the course of the future of mankind.

Those of us who have been blest with the privilege of living in the "miracle" of America, must become increasingly aware that Communism is a world conspiracy designed and directed by ruthless men. There must also be an awareness that the Marx-Lenin-Stalin ideology is no longer a subject for debating societies as such, but that it is present in all of its stark realism today. Less than fifty years ago, with Communism literally confined to one room, its leaders wrote that it must always be intolerant against all who oppose its growth. Today, with more than 35 per cent of the world's population under its domination, the prescription is the same.

Without using the old cliches that "We here in America are facing a critical period in history," or that "We are at the crossroads," or that "This is a time for decision," it must be crystal clear to Americans that we must face up to the realities of conflict imposed upon us by the existence of Communism and its doctrines. Unpleasant as it may be—like the medical fact that organic illness and its ensuing pain cannot be cured by aspirin—our international problems cannot be solved by looking the other way or by mentally rejecting their existence.

MEDICAL INTERN TRAINING

Today, in the United States alone, there are more than 20,000 medical school graduates with internships and licenses to practice medicine, who have elected voluntarily to devote one to four additional years to full-time study in hospitals and medical schools, to become competent specialists. Many more thousands of physicians each year attend courses of a few days to a few weeks' duration to learn about the most recent advances in medicine.

Emergency Child Birth

Rules for Self-Delivery

SINCE a disaster, due to warfare or natural causes, may occur at any time every pregnant woman should know how to deliver her baby if a doctor is not available. Most births occur without trouble.
Follow these rules:

1. Always keep on hand a bag containing the following:
   (a) Flash light.
   (b) Sweater, shawl or similar warm light garment.
   (c) Toothbrush, dentifrice and comb.
   (d) A small box of sanitary napkins.
   (e) One cake of soap.
   (f) Sheeting or newspapers.
   (g) Blanket.
   (h) Six clean diapers.
   (i) Six clean handkerchiefs.
   (j) Twelve safety pins.
   (k) Two baby shirts.
2. Save any available clean water for drinking.
3. When a disaster threatens try to find a reliable person to remain with you.
4. If labor pains occur less than 5 minutes apart and/or last longer than 30 seconds, regardless of where you are, find some protected place for shelter until your baby is born.
5. Do not touch the opening of the birth canal.
6. When the baby is born place him face down across your abdomen.
7. Help the baby to breath by wiping out the inside of his mouth with a clean handkerchief.
8. Cover the baby and keep him warm.
9. *Do not cut* the cord. *Do not pull* on the cord. Wait for the normal delivery of the afterbirth.
10. When the afterbirth is delivered, wrap it securely with the baby. *Do not cut* the cord.
11. After wrapping the afterbirth with the baby put the baby to breast and allow him to suck. This is good for both mother and baby.
12. Keep the baby with you constantly. For added protection, tear a narrow strip of identifying cloth from your clothing and tie it around the baby's wrist.

Physiologic Principles in the Treatment of Diabetic Acidosis

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Rochester, Minnesota

As a consequence of educational efforts on the part of individual physicians, institutions, and the American Diabetes Association, there is probably less diabetic acidosis today than formerly. Nevertheless, there remain ample possibilities for the occurrence of this serious complication of diabetes, and the physician may be confronted with the problem at any time. Its physiologic and therapeutic complexities are so great as to tax the ingenuity and knowledge of whatever physician is called upon to deal with it, and strain the resources of whatever institution houses the patient.

Whether or not acidosis has progressed to the point of coma, it must be regarded as a grave emergency which can terminate in death within a relatively short time after its onset. The patient in severe acidosis is, as it were, on a toboggan run, at the bottom of which is death. With the passage of time, the pace of his downward course accelerates, and the dangers of delay in treatment become progressively greater. Unless his metabolic deterioration is arrested by appropriate therapy, a fatal termination is more or less inevitable.

Certain aspects of the pathologic physiology of diabetic acidosis merit emphasis because of their bearing on problems of therapy. In addition, further disturbances of physiology may be induced by the therapy itself, and these are sometimes of grave clinical significance. One example of this is the hypopotassemia which may develop during the course of treatment if potassium is not administered.

Physiologic Disorders in Acidosis

There are four principal areas in which serious interrelated physiologic disorders occur, each of which requires more or less specific therapy.

1. Distorted energy metabolism. This refers to disturbances of the metabolism of carbohydrate, protein and fat which are initiated by lack of insulin.

2. Disturbed acid-base equilibrium or acidosis. This arises primarily and essentially, but not exclusively, from the ketonemia which is a consequence of accelerated partial catabolism of fat and from losses of sodium in the urine and emesis. The ketone bodies are anions which accumulate in the extracellular fluid. They have the effect of reducing the plasma bicarbonate and eventually the plasma pH. Obviously, prompt arrest of ketogenesis is an essential aspect of early treatment.

3. Disturbances of water metabolism. These arise primarily as a consequence of vomiting and of profound diuresis, owing to an increased concentration of glucose and other metabolites in the extracellular fluid. Eventually intracellular and extracellular dehydration, hemoconcentration, anuria and circulatory shock intervene and complicate the therapeutic problem.

4. Abnormalities of mineral metabolism. Large deficits of various ionic substances, and abnormalities of their concentrations in intracellular and extracellular fluid, develop which are intimately related to the previously mentioned disorders.

Priorities in Treatment

In milder cases in which the sole or major disturbance is in the metabolism of carbohydrate, protein and fat, without serious secondary consequences, the question of priorities does not arise. If the patient has few or no symptoms of acidosis, therapy is directed at restoration of normal carbohydrate metabolism, and this suffices to arrest ketogenesis and thus permits ketosis to subside. Insulin is obviously the prime essential in such cases. It is preferably administered around the clock by some systematic program such as the 6-hour emergency program devised by Woodyatt,[12] or one of its modifications involving administration of multiple doses of regular insulin at evenly spaced intervals together with multiple uniform feedings. Such a program is continued until ketosis has been corrected and the intercurrent illness or injury that initiated the acidosis has been satisfac-

From the Section of Medicine, Mayo Clinic and Mayo Foundation.
The Mayo Foundation, Rochester, Minnesota, is part of the Graduate School of the University of Minnesota.

torily controlled; thereafter a normal program of therapy can be resumed.

More severe acidosis leads to a metabolic catastrophe in which multiple physiologic disturbances coexist. The therapeutic attack must be pushed on several different fronts, and the hard-pressed physician may wonder what aspect of treatment should be given priority. Actually, when one is dealing with a combination of severe acidosis, dehydration, deficits of electrolytes, and perhaps shock and anuria, priorities in treatment begin to lose significance, for each of the physiologic disturbances then present is potentially lethal, and all must be treated simultaneously. A practical exception is that administration of insulin can and should be given first consideration and, whenever possible, should be initiated even before the patient reaches the hospital or within a matter of minutes after recognition of the patient's condition, preferably in the emergency room of the hospital.

In the discussion which follows, major emphasis will be placed on severe acidosis with multiple serious physiologic disturbances, on the presumption that the physician who is skillful in managing this type of case will be quite capable of handling the milder and less complex situations.

Administration of Insulin

Inasmuch as diabetic acidosis in its inception is a state of insulin deficiency, and the patient, in effect, is dying of uncompensated diabetes, insulin must be provided in effective amounts. In a particular case, the questions of how much insulin to give and how often it should be given cannot be answered with precision. Certainly no fixed routine should be followed, for there is enough variability among different patients in the requirement for insulin to make a routine schedule of doses hazardous to some of them. The most important basic principle is to give an amount early in the course of treatment which will produce a maximal physiologic effect. A review of failures in the treatment of diabetic acidosis usually reveals a group of cases in which the major fault clearly was an inadequate amount of insulin.

The hazards of hypoglycemia from excessive amounts of insulin can be anticipated and averted if the patient is watched closely, as he should be, and if information is obtained at frequent intervals regarding the concentration of sugar in the urine and in the blood and the recession of ketosis. An indwelling catheter makes it possible to follow, at short intervals, declining values of sugar and ketones in the urine.

TABLE I. DEFICITS IN DIABETIC ACIDOSIS*

	Patient 1	Patient 2
Sodium+magnesium (mEq.)	300.4	375.1
Potassium (mEq.)	385.2	181.5
Calcium (mEq.)	210.0	152.9
Chloride (mEq.)	110.0	168.3
Phosphorus (mEq.)	262.2	204.2
Fluid (ml.)	5036.0	5159.0

*Adapted from Atchley and associates.

One should be willing, therefore, to risk overtreatment with insulin in preference to undertreatment. For an adult patient in severe acidosis, an initial dose of 100 to 400 units may be given, and similar doses may be repeated every two hours as necessary to insure a decline in sugar and ketones in blood and urine. While it is true that some patients in acidosis are successfully treated with a total dose of 100 units or less, and while small children generally require smaller doses than adults, insulin should be given promptly and in amounts which will produce a decisive physiologic effect as indicated by decreased values of sugar and ketones in the blood and urine in the first few hours of treatment. If, in spite of large doses, such decrease does not occur, the patient is unusually refractory to insulin, and even larger doses should be given.

Reliance should be placed on regular insulin given subcutaneously unless the patient is in a state of shock, in which case a large initial dose can be given intravenously. We have at times administered protamine zinc insulin in addition to regular insulin in order to ensure a carry-over of insulin effect after the acidosis has been largely corrected. However, such use of long-acting insulin should not be reckoned as a part of the treatment of the acute emergency.

Question of Early Administration of Glucose or Fructose

Glucose.—Advocacy of large doses of insulin calls for discussion of the question of early administration of glucose. Theoretically, the advantages of this are the build-up of a "head of pressure" of

glucose which accelerates its utilization,[10] and at the same time, the provision of insurance against the hazards of hypoglycemia. However, it would appear that glucose, if given in sufficient quantity to maintain hyperglycemia, and consequently extracellular hypertonicity, may result in harm by preventing the cells from recovering their lost water. In addition, diuresis is promoted and loss of needed electrolytes is accelerated. More important than either of these arguments is the fact that early administration of glucose interferes with evaluation of the adequacy of the insulin dose, because one of the principal criteria for this evaluation, the level of the blood sugar, may be invalidated.

Later in treatment, however, when the blood sugar has fallen below 150 mg. per 100 cc., and when a supply of electrolyte-free water may be desirable to promote formation of urine, solutions of glucose can and must be used if oral intake of fluids is not yet possible.

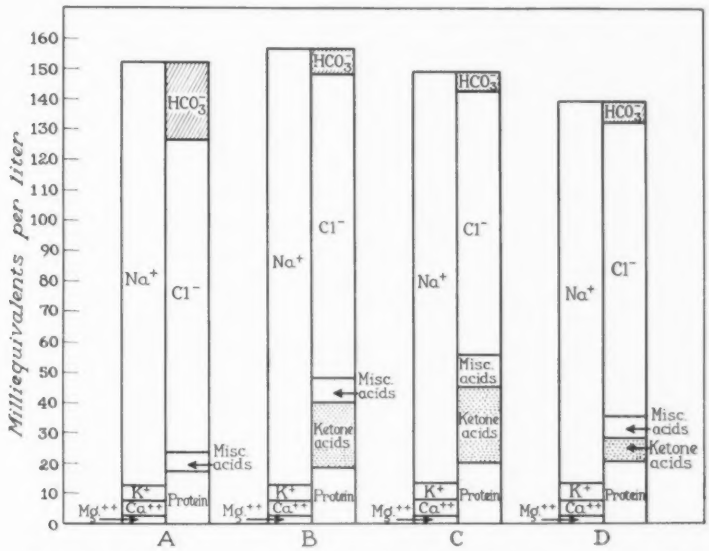

Fig. 1. Acid-base derangements in the blood serum in three cases of diabetic acidosis, compared with normal. Miscellaneous acids, determined by difference, include phosphate, sulfate, lactic acid, uric acid, and amino acids. (A) Normal. (B) Diabetic acidosis of short duration in a fourteen-year-old girl. Probably as a consequence of rapid dehydration, owing to intense polyuria, there has been a slight increase in the concentration of total base of the serum. The concentration of serum bicarbonate has been greatly reduced, corresponding roughly to the accumulation of ketone acids in the blood. The patient had vomited only once and the serum chloride concentration remained essentially normal. (C) Severe acidosis of about three days' duration associated with vomiting in a boy, aged 17 years. A large accumulation of ketone acids, a decrease of total base, and an increase of miscellaneous acids have contributed to reduction of the serum bicarbonate to a dangerously low level. Moderate hypochloremia is present. (D) Diabetic acidosis in a woman, aged fifty years, who had been having symptoms of uncontrolled diabetes for two years. Overproduction and excretion of ketone acids had probably been in progress for a prolonged period before she became critically ill. As a consequence, there has been a marked decrease of total base, chiefly sodium, as well as a severe reduction of serum bicarbonate, in spite of a relatively small accumulation of ketone acids in the blood.

Fructose.—The therapeutic value of fructose remains unproved, but this in itself is not a valid argument against its use. A theoretical argument in favor of its use is that it enters the glycolytic cycle without the need for insulin, and Rosecan and Daughaday[9] have presented evidence that it may accelerate the disappearance of ketone bodies. However, administration of fructose does not do

away with the need for large amounts of insulin, and in the presence of adequate supplies of insulin, it is doubtful that fructose offers significant therapeutic advantage. A certain proportion of

diabetic acidosis owing to withdrawal of insulin (Table I). The electrolyte pattern of the extracellular fluid, as measured in blood serum, may be profoundly altered (Fig. 1). Repletion of the

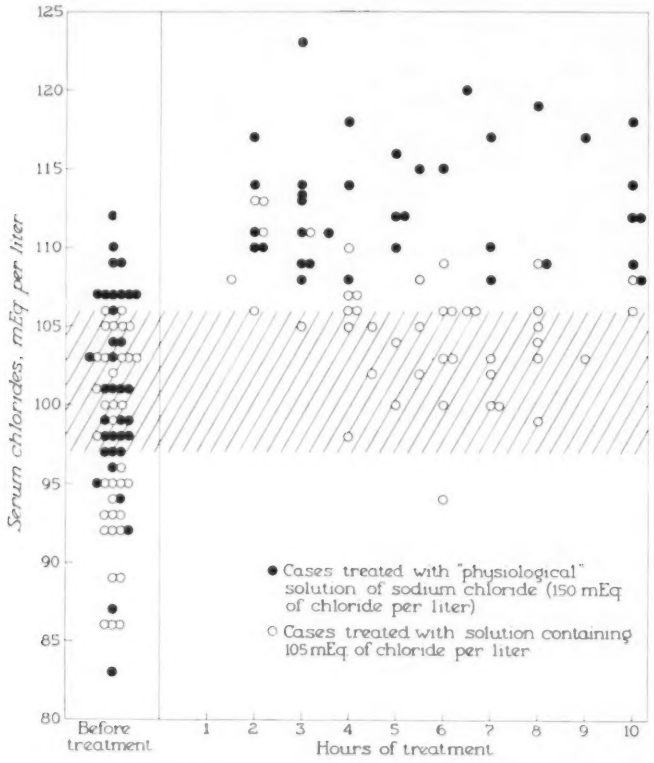

Fig. 2. Relation between serum chloride levels and the chloride concentration of the repair solution employed in seventy cases of diabetic acidosis. In each case, the highest value during treatment is charted. In a few cases, two equally high values are charted. In this Figure and in Figures 3 and 4, the normal range is indicated by a shaded area. (From Sprague, Randall G., and Power, Marschelle H.: Electrolyte Metabolism in Diabetic Acidosis. J.A.M.A., 151:970-976 (Mar. 21) 1953.)

administered fructose goes into the liver and then comes out as glucose and thereby elevates the blood sugar. It thus has the possible disadvantage of interfering with evaluation of the adequacy of the insulin dose, and it may also aggravate extracellular hypertonicity and cellular dehydration. It appears that the potential disadvantages of administration of fructose and its lack of demonstrated value probably outweigh its theoretical advantages.

Repletion of Electrolytes

As shown by the classic study of Atchley and associates in 1933,[1] large deficits of electrolytes, particularly sodium and potassium, are present in deficits and correction of the abnormalities of serum electrolytes are important aims of therapy.

Conventional treatment with insulin, water and sodium chloride, with or without glucose, may induce important disturbances of electrolytes in addition to those which were present before therapy was begun. In a significant proportion of fatal cases, after apparently good initial progress, death occurs about eight to sixteen hours after initiation of therapy, at a time when ketogenesis has been arrested, hyperglycemia corrected and hydration restored. Frequently, necropsy in such cases does not disclose an anatomic basis for death,

and it is difficult to escape the conclusion that the treatment itself may have contributed in some manner to the fatal outcome.

As a means of keeping track of the chemical landmarks during the course of treatment, determinations of the values of serum bicarbonate and chloride are made at intervals of two to three hours during the period of correction of acidosis, in addition to determinations of the values of blood sugar, plasma ketones, and the blood urea, if initial values were greatly elevated, or if renal disease is known to be present. The value of serum potassium is determined as indicated by a flame photometer, or approximated electrocardiographically.

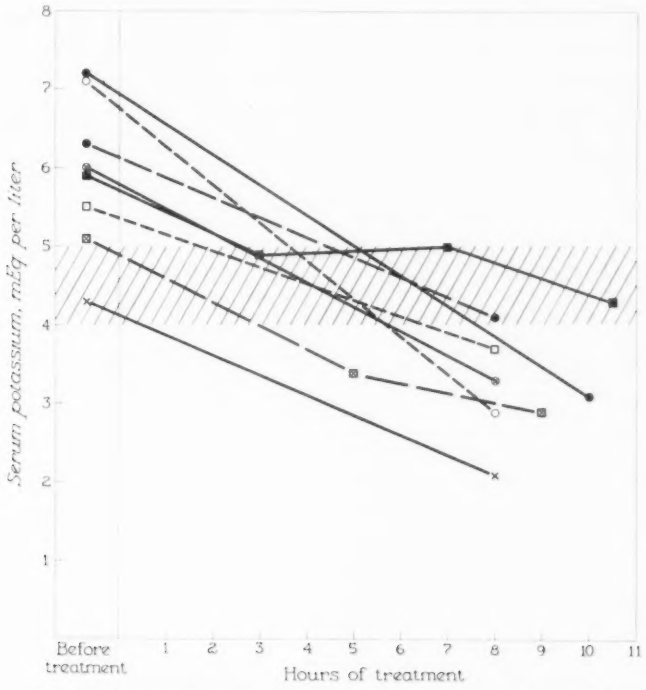

Fig. 3. Changes in the concentration of serum potassium during treatment of diabetic acidosis in eight cases. (From Sprague, Randall G. and Power, Marschelle H.: Electrolyte Metabolism in Diabetic Acidosis. J.A.M.A., 151:970-976 (Mar. 21) 1953.)

Sodium and Chloride.—In the early hours of treatment, the most important aspect of electrolyte therapy is correction of deficits of sodium and chloride.[4] Since the volume of extracellular fluid is definitely decreased, normal or even elevated concentrations of sodium and chloride in the serum do not indicate that there is not a deficiency of these ions.

During repletion of deficits of sodium and chloride, it seems desirable to maintain the concentration of chloride in the extracellular fluid somewhere near normal. Hyperchloremia resulting from administration of excessive amounts of chloride ion delays correction of acidosis, for serum bicarbonate is displaced by chloride as well as by ketone acids and other accumulated anions, producing a degree of chloride acidosis in addition to ketonemic acidosis. The persistence of acidosis prolongs hyperpnea unnecessarily and there is some evidence that it may interfere with the action of insulin.[8] An unavoidable disadvantage is thereby imposed on an ill patient. While the magnitude of this disadvantage is admittedly difficult to evaluate, hyperchloremia is an abnormal state which can and should be avoided.

To avoid hyperchloremia, solutions may be em-

ployed which contain approximately 100 mEq. or less of chloride and 150 mEq. or less of sodium per liter.[11] So-called physiologic solution of sodium chloride is distinctly unphysiologic with respect to its content of chloride, which is approximately 150 mEq. per liter. Figure 2 shows a comparison of the highest values for serum chloride in two groups of cases, in one of which the replacement fluid was physiologic solution of sodium chloride and in the other, a solution containing 105 mEq. of chloride per liter. With the electrolyte solutions for intravenous administration which are now available, and the supplementary solutions which may be added to them, it is a relatively simple matter to prepare solutions containing both sodium and chloride ion in approximately physiologic amounts.

Potassium.—Potassium is the principal intracellular cation and in spite of elevated concentrations in the blood serum prior to treatment, there is uniformly a significant deficit of this ion.[3] Clinically, it is only after several hours of treatment that difficulties due to potassium deficiency become apparent. At this time, the concentration of potassium in serum may reach a low level, sometimes less than 2 mEq. per liter. The behavior of the serum potassium in a group of eight cases of diabetic acidosis is shown in Figure 3. Mechanisms involved in the development of hypopotassemia include removal of the ion from extracellular fluid owing to deposition with protein and glycogen and continued losses in the urine.

A low level of serum potassium may or may not be associated with symptoms of potassium deficiency. Perhaps the magnitude of the intracellular deficit of potassium, which is a function of the antecedent loss of this ion, is as significant a factor as the concentration of potassium in the extracellular fluid. Symptoms of potassium deficiency, when they occur, are related to impaired function of skeletal muscle and myocardium.[5] Muscular weakness may become extreme. The heart may fail and it may be refractory to digitalis glucosides. When weakness involves the muscles of respiration, the acidotic patient is deprived of one of his principal defenses against acidosis, namely, the ability to hyperventilate and thereby maintain a low carbon dioxide tension in the extracellular fluid. In this connection, it should be noted that narcotic drugs, because of their respiratory depressant action, may retard the elimination of carbon dioxide through the lungs with consequent intensification of acidosis. Therefore, administration of narcotic drugs to the patient in severe diabetic acidosis is hazardous.

In the treatment of severe acidosis administration of potassium is started approximately four to six hours after the initiation of therapy, provided that the output of urine is satisfactory and adequate amounts of insulin have been administered. By then, almost uniformly, the concentration of potassium in the serum has decreased significantly and evidences of potassium deficiency may be apparent in the electrocardiogram. Since there is no way of estimating with any precision the magnitude of the deficits which are to be corrected, a safe procedure is to administer potassium at a conservative rate of approximately 25 mEq. per hour in adult patients. This is continued until intravenous administration of fluid can be stopped and oral feedings begun. Deficiency of potassium is associated with deficiency of phosphorus, and both substances can be supplied in the form of a buffered solution of potassium phosphate. The preparation may be preferable to potassium chloride, since the latter may provide an unwanted amount of chloride along with the wanted amount of potassium.

Phosphorus.—The behavior of phosphorus in diabetic acidosis parallels that of potassium in many respects. With treatment, unless phosphate is administered, a striking decrease occurs in the concentration of inorganic phosphate in the blood serum. Data obtained in eight cases are shown in Figure 4. In contrast to potassium, however, the clinical implications of phosphorus deficiency and hypophosphatemia are not clear. There is no particular reason to think that depletion of phosphorus plays a role in the fatal outcome of diabetic coma. Nevertheless, the deficit is of such large magnitude that it may conceivably be desirable to take steps to correct it.

Likewise, the importance of depletion of other ions which are in deficit, particularly magnesium, is not known, and to date we have not made a practice of administering magnesium to these patients. Physicians who may feel inclined to undertake therapy with magnesium should be reminded that administration of excessive amounts may produce respiratory failure and labile hypotension.

Repletion of Water

Losses of water in severe diabetic acidosis may be extreme, sometimes amounting to 10 per cent or more of body weight. The metabolic data of failure. Subsequently, administration of fluid may proceed more slowly. Replacement of the total fluids can usually be accomplished with safety in the first twelve to twenty-four hours of treatment.

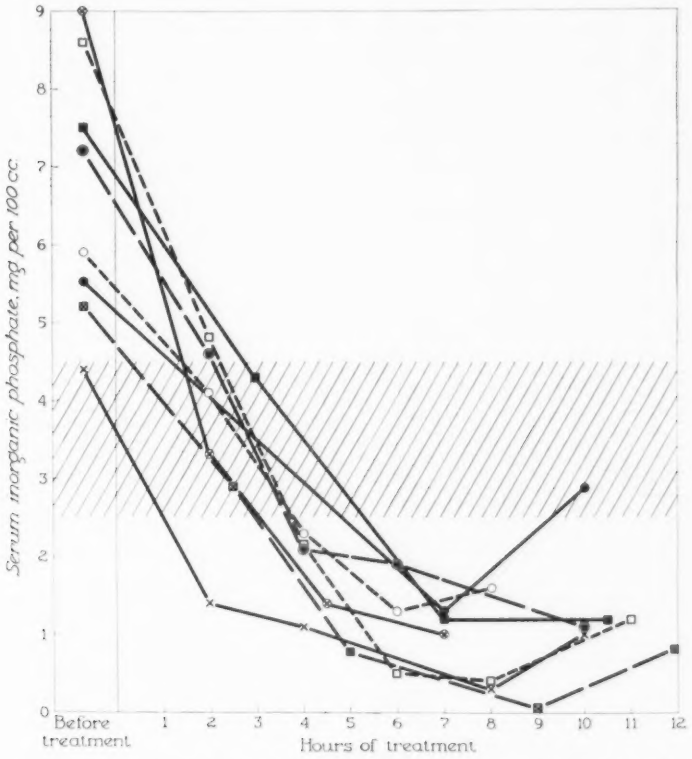

Fig. 4. The development of hypophosphatemia during treatment of diabetic acidosis in the same eight cases charted in Figure 3. Inorganic phosphate is expressed as phosphorus. (From Sprague, Randall G. and Power, Marshcelle H.: Electrolyte Metabolism in Diabetic Acidosis. J.A.M.A., 151:970-976 (Mar. 21) 1953.)

Butler and associates[2] suggest that the cells sustain a relatively greater loss of water than does the extracellular space. Clinically, loss of water is manifested by dehydration, hemoconcentration, circulatory shock, and anuria.

Certain basic principles in water repletion can be applied as necessary to meet the needs of the individual patient. Parenteral fluids are best administered intravenously. As a rule, in adults the first 1 or 2 liters can be given rapidly, even when there is evidence of circulatory failure, for the latter is more likely to be related to depletion of salt and water, with severe contraction of the volume of extracellular fluid, than to myocardial

When the patient is ready to accept liquids by mouth, water, fruit juice, soups, soft drinks and so forth are given, and any remaining deficit is thereby corrected in a safe manner.

Replacement of fluids and other treatment may fail to prevent or correct circulatory collapse. Indeed, Danowski[7] has advocated early treatment of all patients in severe diabetic acidosis with colloid solutions, on the presumption that any patient who has fully developed acidosis has some measure of circulatory inefficiency arising from the large deficits of extracellular water and salt. My associates and I do not treat shock until it becomes clinically apparent, but we are aware

that early recognition and treatment of shock are important. Howard[6] has pointed out that estimations of the hematocrit reading before and during treatment may help in the early detection of shock or lack of response of existing shock to treatment. Failure of the hematocrit to fall 5 to 10 per cent in the first few hours of treatment with adequate amounts of intravenously administered fluid and electrolytes indicates that the desired dilution of blood is not occurring because too much of the administered fluid is leaving the circulation. Under these circumstances, or in the presence of frank shock, transfusions of plasma, whole blood or colloid solutions such as dextran may help to correct a potentially serious situation. Levofed may occasionally be lifesaving.

As treatment progresses, the possibility of overhydration must be borne in mind. Attention to certain signs will help to avoid trouble in this regard; namely, rales indicative of moisture in the bases of the lungs, a low output of urine in spite of administration of a large volume of fluid, a low hematocrit reading, venous distention or a rising venous pressure, and the appearance of frank edema. Preferably before such signs appear, the rate of administration of fluid should be diminished, or administration of fluid should be stopped entirely until there is effective diuresis.

Summary of Parenteral Therapy

The important aspects of parenteral therapy of diabetic acidosis, therefore, can be summarized as follows: The patient should promptly be given a dose of insulin which is considered to be adequate or more than adequate to produce a decisive physiologic effect. Thus, if his usual dose of insulin is 50 units daily and if his plasma bicarbonate is 5 or 6 mEq. per liter and the blood sugar 500 mg. per 100 cc., one can start by giving him 300 or 400 units, followed by additional doses of 100 or 200 units every two hours until a decisive breakthrough in his blood sugar, plasma bicarbonate and plasma ketones has been made. Therapy with fluid and electrolytes can be initiated at a rapid rate with a solution containing 150 mEq. of sodium, 100 mEq. of chloride and 50 mEq. of lactate. After about four hours, providing the blood sugar is falling and urine output is satisfactory, 25 mEq. of buffered solution of potassium phosphate can be added to this for administration each hour. When the value of blood sugar has fallen to about 150 mg. per 100 cc. and additional water is needed for formation of urine, solutions of glucose in water can be started with added potassium phosphate; 40 mEq. of sodium lactate also may be added to each liter if the serum bicarbonate remains low. Oral feedings of fluid containing carbohydrate and electrolytes are started as soon as feasible.

Miscellaneous Measures

Certain other measures may be important or helpful in some cases. If there is even a suspicion of gastric dilatation, and particularly if a splash can be detected on palpation of the epigastrium, gastric lavage should be performed. The old practice of keeping the cold patient warm with hot water bottles or electric pads is probably not well founded, particularly if the patient is in shock, for the peripheral vasoconstriction which produces a cold skin is probably a helpful physiologic adjustment.

Complicating conditions which may have precipitated the diabetic acidosis or contributed to its severity should receive appropriate treatment. These include particularly myocardial infarction, other vascular accidents, infections, injuries and hyperthyroidism.

The Importance of a Running Record of Therapy

In the management of severe acidosis, it is important not only to obtain information regarding the patient's status at regular intervals, but also to keep a concise tabular record of these data in chronologic order which will permit easy and frequent review. Otherwise, the patient's chart will become filled with a mass of notes and figures which, after a few hours, will be difficult to interpret. To avoid confusion, an orderly detailed record of everything that transpires should be kept on a "coma sheet." Thus, a notation is made when a blood sample is drawn and the values for the determination made on that blood sample are entered, and a notation is made of the hour of receipt of the report from the laboratory. Then it is clear that a decision regarding therapy which is made at 1 o'clock is not based on a laboratory report which did not reach the physician until 2 o'clock. Careful but brief notes should be made regarding the patient's state of consciousness, respiration, pulse, blood pressure and so forth. Without such a record, the physician managing a case of diabetic coma is like a captain navigating a ship without a compass or rudder.

Conclusions

It is true that most patients will recover from diabetic acidosis, as they have for many years, without precise attention to the finer details of electrolyte, water and other therapy. This, however, is not sufficient reason for reducing these aspects of treatment to a routine, for there is no reliable way of separating in advance the majority of patients for whom carefully individualized treatment is not important from the minority of patients for whom it may be of vital importance.

It should be recognized that prevention of diabetic acidosis is the most important aspect of treatment, for even the most skillful management will not eliminate all mortality. There will continue to be a small number of irretrievably ill patients who will die in diabetic acidosis, or soon after its correction, in spite of the most expert treatment. However, if present-day knowledge of treatment is skillfully applied, this group should be made up, for the most part, of patients who arrive at the hospital in irreversible shock or with severe complicating illness.

References

1. Atchley, D. W., Loeb, R. F., Richards, D. W., Jr., Benedict, Ethel M., and Driscoll, Mary E.: On diabetic acidosis: A detailed study of electrolyte balances following the withdrawal and reestablishment of insulin therapy. J. Clin. Invest., 12:297-326 (Mar.) 1933.
2. Butler, A. M., Talbot, N. B., Burnett, C. H., Stanbury, J. B., and MacLachlan, E. A.: Metabolic studies in diabetic coma. Tr. A. Am. Physicians, 60:102-109, 1947.
3. Danowski, T. S., Peters, J. H., Rathbun, J. C., Quashnock, J. M., and Greenman, L.: Studies in diabetic acidosis and coma, with particular emphasis on the retention of administered potassium. J. Clin. Invest., 28:1-9 (Jan.) 1949.
4. Danowski, T. S., Winkler, A. W., and Peters, J. P.: Salt depletion, peripheral vascular collapse, and the treatment of diabetic acidosis. Yale J. Biol. & Med., 18:405-417 (May) 1946.
5. Holler, J. W.: Potassium deficiency occurring during the treatment of diabetic acidosis. J.A.M.A., 131:1186-1189 (Aug. 10) 1946.
6. Howard, J. E.: Observations on the therapy of diabetic acidosis. Proc. Am. Diabetes A., 10:152-159, 1950.
7. Howard, J. E., Danowski, T. S., Knowles, H. C., Jr., Lukens, F. D. W., and Sprague, R. G.: Fluids and electrolytes in the therapy of diabetic acidosis. (Panel discussion.) Diabetes, 4:465-472 (Nov.-Dec.) 1955.
8. Mackler, Bruce, Lichtenstein, Henrik, and Guest, G. M.: Effects of ammonium chloride acidosis on the action of insulin in dogs. Am. J. Physiol., 166:191-198 (July) 1951.
9. Rosecan, Marvin, and Daughaday, W. H.: A comparison of insulin treatment with and without added carbohydrate in human diabetic ketosis. J. Clin. Invest., 33:49-56 (Jan.) 1954.
10. Soskin, Samuel, and Levine, R.: A relationship between the blood sugar level and the rate of sugar utilization, affecting the theories of diabetes. Am. J. Physiol., 120:761-770 (Dec.) 1937.
11. Sprague, R. G., and Power, M. H.: Electrolyte metabolism in diabetic acidosis. J.A.M.A., 151:970-976 (Mar. 21) 1953.
12. Woodyatt, R. T.: Diabetes Mellitus. In Cecil, R. L.: A Textbook of Medicine. Philadelphia: W. B. Saunders Company, Ed. 6: pp. 602-625, 1943.

ACUTE DISSECTING ANEURYSM OF THE AORTA

Surgical correction of dissecting aneurysm of the aorta is now possible. The exact diagnosis of this condition is therefore more important than ever. The histories of eleven patients who underwent surgery have been analyzed in order to identify retrospectively the symptoms and findings most valuable in establishing the diagnosis. The most important was a history of very severe pain which usually radiated to the back and frequently moved from its original location to another area; it was more severe than the pain of myocardial infarction and particularly significant in the absence of electrocardiographic abnormalities. Roentgenograms were of critical importance in nine of the eleven cases, especially in one instance when the aortogram showed a double-barreled lumen. A difference in the peripheral pulses was present in six cases. Systolic murmur, abdominal bruit, and an abdominal mass occurred in less than half of the cases, but were helpful diagnostic points when they did occur. Four of the eleven patients survived surgery and did well after operation. Although the mortality in this series was high, the risks of allowing acute dissecting aneurysm to go untreated are so great that the authors advise prompt operation as soon as diagnosis is established. (Abstracted from Julian R. Beckwith, William H. Muller, W. Dean Warren, and J. Edwin Wood, Jr.: *A.M.A. Arch. Int. Med.*, 104:217-225 (Aug.) 1959.

Prevention and Management of Postgastrectomy Symptoms

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PARTIAL gastrectomy is generally conceded to be the most acceptable operative procedure when surgical treatment is required for acid-peptic ulcer disease. However, physicians often are hesitant in recommending such treatment, particularly when the patient is in the younger age group. This is not related to the morbidity or mortality of the operation itself. Rather, it is due to the status that occasionally follows recovery from the procedure. Inability to eat normal meals, inability to gain or maintain weight, and the various distressing post-prandial symptoms that may occur are the reasons for this reluctance. Most of the numerous publications dealing with this subject have been concerned with the alterations of body chemistry and hemodynamics that occur. These studies have been very helpful in elaborating some of the etiologic factors involved. However, many of these reports and most surgical monographs have failed to emphasize or even mention certain practical points of importance in the prevention and management of these disturbing symptoms.

Even the most enthusiastic advocates of partial gastrectomy do not claim this operation to be the final word in the surgical treatment of acid-peptic ulcer. The continued appearance of reports dealing with other operative procedures is one measure of this fact. However, the prevention of recurrent ulceration has been very satisfactorily managed by performing a 75 to 80 per cent resection of the distal stomach. Of more immediate concern are the reports dealing with the undesired symptoms which may follow removal of this much of the stomach. By general usage, the term "dumping syndrome" has come to signify almost any symptom which may follow the establishment of a gastrointestinal anastomosis. The causes are several, and the treatment, whether preventive or corrective, must be directed at the specific cause.

There are perhaps as many ways to perform a gastrectomy as there have been surgeons to perform the operation. A surgeon has no need to consider any modification of his technique or management if his patients do not develop recurrent ulcerations or disagreeable postoperative symptoms. However, when either occurs, the operative technique and subsequent management should be carefully reviewed in an effort to determine the cause. Only then can the situation be remedied in the particular patient and perhaps prevented in future patients. The following suggestions have proven most helpful in preventing or correcting undesired symptoms after partial gastrectomy. No claim of originality is made.

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Dietary Measures

Many patients about to undergo gastrectomy for acid-peptic ulcer disease have had occasion to discuss the operation with other patients, their relatives or friends. Some have exaggerated fears of the procedure and its possible consequences. Prior to operation, brief but firm reassurance should be given the patients regarding their future ability to eat regular meals. No details of this phase of the management are volunteered except that it is planned for them to be eating a regular hospital soft diet by the fifth postoperative day. At this time, it is perhaps best to explain the reasons for the routine use of gastric suction tubes, blood transfusions and intravenous fluids, breathing and leg exercises, and early ambulation. A few moments so spent will lead to better cooperation from less apprehensive patients during the early postoperative period.

In the first few weeks after gastrectomy, it is not expected that the patient can eat a meal of usual quantity. At least four meals daily are recommended. Restriction of liquid intake with meals is very important if the patient does not eat all of the food served. It is explained that liquids such as water compete with solid food for space in the "smaller stomach." The patient may grasp the idea more readily if asked to visualize the soft and solid foods in a drinking glass alongside a glass of water. Explaining that weight and strength can only be regained and maintained

by eating food, the patient soon learns the advisability of drinking water and other liquids between meals.

Carbohydrates have been incriminated as an important factor in the cause of the true dumping syndrome. Identical symptoms can be produced in normal subjects with intact stomachs by direct introduction of hypertonic solutions into the jejunem.[7,13] After gastrectomy, the ingestion of glucose is much more apt to be associated with dumping symptoms than the more complex carbohydrates which require some time for the digestive processes required to convert them to simple glucose. Reduction of blood volume secondary to passage of fluid into the jejunal lumen to reduce the hypertonicity of the ingested material[15] and/or the jejunal distention that results[13] are believed responsible for the symptoms which have their onset fifteen to thirty minutes after eating. The onset of similar symptoms approximately two hours after eating may be due to a hypersensitivity to insulin with a resultant hypoglycemia.[1] These symptoms do not occur in persons with intact stomachs since glucose is not absorbed from the stomach until high concentrations are reached. After loss of the sphincter mechanism as a result of gastrectomy, ingested glucose may pass immediately into the jejunem and thus effect the above mentioned symptoms. In most individuals exhibiting either syndrome, reduction of the amount of carbohydrate taken in the form of glucose will usually relieve the distress. Sweet desserts, sweetened fruits, sweetened milk shakes or ice cream, and candies taken with or between meals are usually responsible.

The most negelected phase of the dietary management is that of adequate mastication. In a prominent textbook of physiology,[3] it is mentioned that more stress has been laid upon the chemical rather than the mechanical aspects of digestion since the Eighteenth Century. It is further stated that the mechanical factors in digestion are "in reality of just as great or even greater importance than the chemical factors. . . . The larger part of the stomach may be removed and provided the consistency of the food is made suitable, little digestive inconvenience results." Removal of most of the stomach results in the loss of its ability to break up food and reduce it to a semifluid consistency (chyme). There must be adequate chewing of solid foods if the ingested material is to be broken down so that the digestive processes may be completed and the nourishing elements absorbed prior to their passage into the colon. The time required for passage of food through the small bowel may be shortened after gastrectomy, further emphasizing the need for adequate chewing of food. Insistence on this point lengthens the time required to eat a meal with the result that the food is delivered more slowly to the sensitive proximal jejunem. It is mandatory to see that the patient has the necessary equipment for adequate mastication. If not, the indicated dental work must be carried out as soon as is feasible. It is not difficult to obtain the patient's cooperation in this matter when its importance is explained.

Patients are advised of the ability of alcohol, caffeine and nicotine to stimulate gastric (acid) secretion and that their avoidance is desirable. For the inveterate smoker or coffee drinker, it usually is possible to effect a compromise wherein they drink coffee or smoke only after meals when food is present to mix with the gastric secretions. Fried, greasy and highly seasoned foods are more difficult to digest and may cause some distress during the first few months of readjustment.

Another practical point deserves mention. After recovery from the operation, these patients should be followed by the referring physician. When the long range follow-up care is managed by a surgeon, the possible need of a subsequent operation is at least implied. In some patients, this may represent a significant source of tension and may be responsible for some distress, digestive or otherwise. When referred back to their physician, they are given strong assurance that no additional operative treatment will be required provided they follow instructions and report as directed for periodic examinations.

Technical Factors

After extensive studies over a period of several years, Randall[14] concluded that the major reason for loss of weight after gastric resections was the failure of the patients to eat adequate amounts of food. In most instances, this was due to an effort by the patient to avoid dumping symptoms. As regards the cause of these symptoms, I am in complete agreement with Haubrich[9] who stated "with full recognition of the surgeon's skill, I am convinced that the technic of the operation is a contributing factor." In many of the studies of post-gastrectomy symptoms, this important factor receives little or no consideration. The implications are several. There are numerous different

types of gastrectomy. There are numerous modifications of each of the different types. The technique of a single surgeon may vary from case to case even though employing the same type of operation. Avoiding a lengthy consideration of these factors, there is general agreement that certain principles should be incorporated in any type of partial gastrectomy. These include (1) resection of an adequate amount of stomach; (2) establishment of an anastomosis as high as feasible in the intestinal tract; (3) the construction of a stoma that does not cause obstruction or facilitate too rapid emptying of the gastric remnant.

After another rather extensive trial of the Billroth I type gastrectomy, the trend is back toward the Billroth II procedure.[6] The lower incidence of recurrent ulcerations when the Billroth II procedure is used in the treatment of duodenal ulcer is responsible.[12,18] In addition, the Billroth I operation has never gained favor with many surgeons because of the tendency to resect less than the required 75 per cent of the stomach and its lack of applicability when there is extensive involvement of the duodenum.

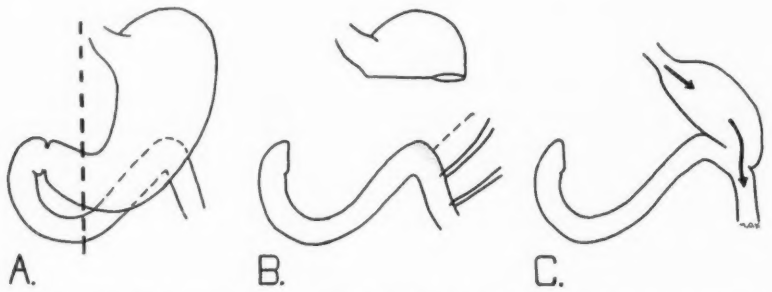

Fig. 1. (A) Usual anatomic relationship of the duodenojejunal junction to the stomach. Vertical line indicates relative position of high midline incision after excision of xiphoid process. (B) Line of incision in mesocolon indicated immediately adjacent to the duodenojejunal junction. Shaded area denotes region from which ligament of Treitz dissected free. Anastamotic site marked with two sutures inserted *before* jejunem displaced temporarily above mesocolon. (C) Completed anastamosis placed below mesocolon. No kinking of small bowel. No hitatus for internal hernias. Elongated fundus more mobile after high ligation of left gastric artery.

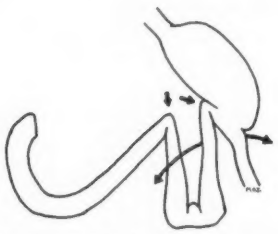

Fig. 2. Diagram indicating redundancy of proximal jejunem when an actual loop is used for retrocolic anastamosis. Short arrows indicate where kinking may occur. Long arrow passing posterior to anastamosis denotes hiatal site of possible hernias. The same sites of herniation and kinking will be present even though a shorter loop than the one indicated is used and thus the recommendation for a "no-loop" anastamosis.

When the Billroth II procedure is performed, the gastrojejunostomy may be performed anterior or posterior to the transverse colon. The disadvantage of the posterior anastamosis most often mentioned by surgeons is that if a marginal ulcer develops, its surgical management may be more difficult than when in an antecolic position. This is a result of the problems encountered in the management of marginal ulcers following posterior gastroenterostomy used as definitive treatment. Actually, marginal ulcers after *adequate* gastric resection are rare. The possible disadvantages to the patient of the antecolic anastomosis are several. The stoma is placed more distally in the jejunum, resulting in greater opportunity for kinking of the jejunem. This may cause obstruction of either the afferent or efferent loops. The former is one of the most important factors responsible for "blow-out" of the duodenal stump. The latter is a common cause of obstruction in the early postoperative period, often attributed to "edema of the stoma." The incidence of the troublesome "afferent loop syndrome" is greater after the antecolic anastamosis.[11,20] Intestinal obstruction may occur as a result of incarceration of loops of small bowel through the hiatus formed by the jejunal loop and transverse colon.[17,19] The longer jejunal loop re-

quired for antecolic anastamosis allows more resorption of bile and pancreatic juice before mixing with ingested food.[8] As a result, these important juices may be deficient with inadequate digestion and weight loss resulting. The ability of the intestinal mucosa to resist the action of acid-pepsin decreases as the distance from the pylorus increases.[10] Thus, there is theoretically an increased chance of developing a marginal ulcer in the longer loop required for the antecolic anastomosis.

It is believed that the performance of an adequate resection of the stomach with the establishment of a posterior, antiperistaltic, Hofmeister anastamosis, leaving the terminal duodenum and proximal jejunum in the same position as found on entering the abdominal cavity, is the best method of eliminating the technical factors responsible for recurrent ulcerations and undesired postoperative symptoms. It is usually stated that the posterior anastomosis allows use of a shorter loop of jejunum. For example, Walters[18] stated that the distance from the ligament of Treitz to the stomach is 15 cm. for a posterior anastamosis and twice that distance when antecolic. It is suggested that no loop of jejunum as such be used. After severing most of the ligament of Treitz, the most proximal jejunum is temporarily displaced above the mesocolon through an opening made immediately adjacent to the duodenojejunal junction. The region of the junction from which the ligament has been cleared is subsequently sutured to the middle third of the transected stomach. This protects the "critical angle" as well as establishes a wall directing ingested material into the efferent loop (Fig. 1). If an actual loop of jejunum is used, it may facilitate the technical maneuvers of performing the anastamosis, particularly if the incision used does not give adequate exposure. However when such an anastamosis is completed and placed below the mesocolon, kinks may result at either the duodenojejunal or gastrojejunal junctions which may cause obstruction (Fig. 2). Obstruction at either point may result in a duodenal stump blow-out or the afferent loop (bilious regurgitation) syndrome. In addition, herniation of intestinal loops may occur between a "short" retrocolic jejunal loop and the mesocolon.[2,17] Proper suturing of the mesocolic opening to the stomach just proximal to the anastamosis prevents herniations through the mesocolon. Dunphy[4] recently described a worthwhile refinement of technique. In thin patients, the terminal duodenum was exposed from above in its retroperitoneal position and used for the anastamosis. The transverse mesocolon was thus actually not opened and the inferior abdominal compartment not entered. In more obese patients, the

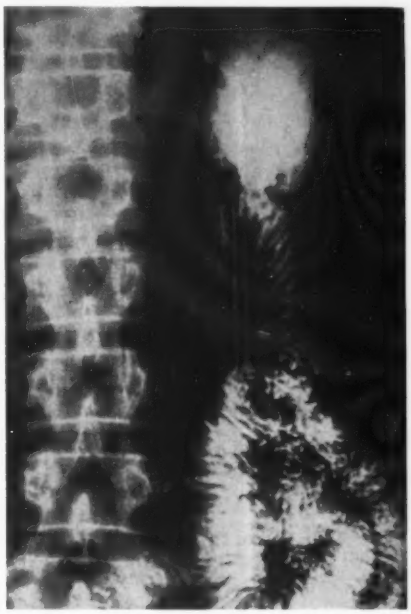

Fig. 3. Barium study following partial gastrectomy performed on 52-year-old man for duodenal ulcer. Note width of stoma and minimal filling of efferent loop (terminal duodenum).

ligament of Treitz is severed and the fourth portion of the duodenum dissected free and brought through an opening at the very base of the mesocolon just above the pancreas. The mesocolon is closed so that only the efferent loop and its mesentery pass through it, the gastric remnant and the anastamosis lying above.[5]

Approximately one third of the width of the stomach is used for the anastamosis. There is no advantage to the patient in making a stoma with a diameter greater than that of the proximal jejunum. Avoidance of the Polya type anastamosis is indicated in order to preserve some reservoir functon of the gastric remnant and to prevent ingested food and liquid passing into the afferent loop. Perhaps the only advantage of the Polya anastamosis is that it requires less operating time. The possible disadvantages certainly outweigh this minor convenience.

Adequate exposure is required for the successful

performance of any operation. This is particularly true in performing a high resection of the stomach. Ligation of the left gastric artery and high transection of the proximal stomach are facilitated by use of a high midline incision, excising the xiphoid process when necessary.[16,21] This incision provides excellent exposure for the performance of a posterior "no-loop" anastamosis in patients of all body types.

A barium study is recommended as soon as convenient after the patient is taking a soft diet well. The extent of the resection, the size of the stoma, its patency, and the progress of the meal in the small bowel are noted (Fig. 3). This allows a more exact evaluation of the extent of the resection than the surgeon's estimate. Improper function of the stoma or extensive filling of the afferent loop can be recognized and the symptoms which may result anticipated. In addition, a radiological baseline is established for comparison in the event further x-ray studies are required in the future. It should be mentioned that x-ray studies probably do not give an accurate estimate of the reservoir function of the gastric remnant. Liquids (including the barium suspension) pass into the jejunum more rapidly than solid foods.

Summary

A brief review of the factors responsible for undesired symptoms after partial gastrectomy is presented. When these symptoms occur, the need for critical evaluation of the dietary management and the pertinent surgical technique is stressed.

Mastication is a very important factor in the well-being of these patients which has not received adequate attention. Restriction of fluids taken with meals and glucose in the diet are also important measures in the management of these undesired symptoms.

Reasons are presented to substantiate the suggestion that the Billroth II resection using a posterior, antiperistaltic, Hofmeister anastamosis of the "no-loop" type is the procedure best fitted technically to eliminate undesirable post-gastrectomy symptoms.

References

1. Barnes, C. G.: Hypoglycemia following partial gastrectomy. Lancet, 2:536-539 (Oct. 11) 1947.
2. Berkas, E. M., and Ferguson, D. J.: Small-bowel obstruction after gastrectomy. A.M.A. Arch. Surg., 76:322-326, 1958.
3. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice. 6th ed. p. 503. Baltimore: The Williams and Wilkins Company, 1955.
4. Dunphy, J. E.: Paper presented before the Academy of Surgery of Detroit, March 13, 1958.
5. Dunphy, J. E.: Personal communication to the author, August 19, 1958.
6. Fallis, L. S.: The Billroth I gastrectomy. Surg., Gynec., & Obst., 105:107-109, 1957.
7. Fisher, J. A., Taylor, W., and Cannon, J. A.: The dumping syndrome: correlations between its experimental production and clinical incidence. Surg., Gynec., & Obst., 100:559-565, 1955.
8. Grossman, M. I., in Zimmerman, L. M., and Levine, R.: Physiologic Principles of Surgery. p. 576. Philadelphia: W. B. Saunders Company, 1957.
9. Haubrich, W. S.: Mechanism and management of the dumping syndrome. Henry Ford Hosp. Bull., 6:55-60, 1958.
10. Ivy, A. C., Grossman, M. I., and Bachrach, W. H.: Peptic Ulcer. p. 350. Philadelphia: The Blakiston Company, 1950.
11. Jordan, G. L., Jr.: The afferent loop syndrome. Surgery, 38:1027-1035, 1955.
12. Jordan, G. L., Jr.: Treatment of the dumping syndrome. J.A.M.A., 167:1062-1066 (June 28) 1958.
13. Machella, T. E.: Mechanism of the post-gastrectomy dumping syndrome. Gastroenterology, 14:237-251, 1950.
14. Randall, H. T.: Alterations in gastrointestinal tract function following surgery: nutrition and the dumping syndrome after gastrectomy. Surgical Clinics of North America. pp. 585-602. Philadelphia: W. B. Saunders Company, 1958.
15. Roberts, K. E., Randall, H. T., Bane, H. N., Medwid, A., and Schwartz, M. K.: Studies of the physiology of the dumping syndrome. New York State J. Med., 55:2897-2902, 1955.
16. Saint, J. H., and Braslow, L. E.: Removal of the xiphoid process as an aid in operations on the upper abdomen. Surgery, 33:361-366, 1953.
17. Stammers, F. A. R.: Remarks on fifteen cases of small-bowel obstruction following antecolic partial gastrectomy and one case following retrocolic partial gastrectomy. Brit. J. Surg., 42:34-38, 1954.
18. Walters, W., in Christopher's Textbook of Surgery. 6th ed. pp. 606-617. Philadelphia: W. B. Saunders Company, 1956.
19. Warren, R. P.: Acute obstruction of afferent or efferent loop following antecolic partial gastrectomy. Ann. Surg., 139:202-205, 1954.
20. Wells, C. A., and MacPhee, I. W.: The afferent loop syndrome: bilious regurgitation after subtotal gastrectomy and its relief. Lancet, 2:1189-1193 (Dec. 9) 1952.
21. Young, M. O.: The upper midline incision with a note on removing the xiphoid process. Northwest Med., 54:1087-1089, 1955.

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The Case for Medicine to the People

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IN the past few years, doctors of medicine have been under fire from several groups. For example, recently on a television newscast, the reporter announced the day's births. He made quite a point that some doctors had failed to sign birth certificates for several days while osteopaths never failed. Various people and groups, such as labor, people in branches of government, journalists, and newscasters, are carrying on campaigns to misinform the public and control medicine. What is happening to the attitudes toward the medical profession? Here is a society of men schooled in the art and science of medicine whose heritage is as old as man, following principles of practice formulated by the ancient Greek Hippocrates. Through the ages, these principles have persisted and have been enriched with accumulated knowledge. Medical men are no less dedicated today than they were then. Let us examine the picture as its exists today.

Medicine Versus Cults

Since there has been a society of people, there has probably been a medicine man who ministered to the ills of his fellow man. From this beginning, medicine, as we know it today, has been derived. There have also developed various faith healers and cultists. These, too, have come down to us from the past to modern times. What are some of these? There are naturopaths, herbologists, colonic irrigationists, chiropodists, optometrists, physical therapists, chiropractors, cancer quacks, osteopaths, and "psychologists." Some of these "professions" even have formal schools to train them, such as they are. Many of these "professions" confer the title of "doctor" on their graduates with a certificate and a license to practice their "arts." How is a mentally disturbed person to know the difference between a "psychologist" and a psychiatrist, both being duly licensed by law to practice their field, and both calling themselves doctor? How is a person to know that the sore on his toe that was treated by a chiropodist won't heal because he has diabetes or inadequate circulation in his leg? Is the toe or foot isolated from the body so that one can specialize in it, disregarding the rest of the body? Did one ever have his toe stepped upon and not feel pain? When the cultists are treating a person who has a serious problem or develops a complication, whom do they call to take over? The M.D., of course. It is no wonder that the general public is confused. How is one to know what or who is best? Each conveys to the public his ability to do certain things, and he has a certificate to prove that he is qualified. What the public fails to realize is that over 50 per cent of the ills of the people are actually self-limited complaints that will correct themselves whether or not something is done to them or given to them. The trouble lies in the other less than 50 per cent where much harm can be done by delay in diagnosis and proper therapy. A colonic irrigation is not the right treatment for constipation, where the real cause is an undiagnosed cancer.

It would be wise for everyone who seeks medical attention from a member of any group who profess to be practitioners of any of the "healing arts" to ask this: "What has his profession contributed to the science of medicine that can improve my well-being"? If one is impartial and looks at the facts and the discoveries, one will find that all advances in medicine have been made by men in the medical (M.D.) profession and its associated and allied professions. In recent times, there have been the discoveries of the sulfa drugs; the antibiotics; the immunizations for various infectious diseases such as poliomyelitis; improvements in heart and vascular surgery; development of highly specialized surgical techniques in all fields of surgery, and new knowledge of blood diseases, to name only a very few. The list is endless. Can any of the cults claim any one advancement in medical science that has a factual, reproducible basis? In medicine, we are dealing with the most precious of all things, human life, which is worthy of only the best. Medicine is giving the best that is available to man's knowledge. I ask again, why has the medical profession been subject to unjustified adverse criticism?

Cost of Medical Care

Lately, certain labor leaders have turned their attention to the field of medicine. It seems that they feel that the American working man is not being cared for medically as well and as cheaply as they think he should be. There is no quarrel with this thought if it is based on fact. Generalizations and innuendoes do not make a thing so. Taking into consideration the size of this country and its rapid growth and development, the medical profession has nothing to be ashamed of. In fact, it is to be commended for its achievements in all fields of endeavor in the improvement of the health of this country. Admittedly, there are and will always be many areas in need of improvement. Progress is being steadily made in all of these areas, no matter which one may be discussed for arguments sake. They should be reminded that on its own, the medical profession was the first to undertake prepaid medicine on a large scale through its non-profit Blue Cross and Blue Shield plans. These are growing in size and coverage. Having started from scratch only twenty years ago, a great deal has been accomplished, with the people still enjoying the free choice of their doctor. Is this not better than extracting another tax to be paid to the government to set up a bureau with a large payroll and forms in quadruplicate—a bureau which may become a political football? Can't the people continue to provide themselves prepaid medicine over which they will have better local control than over a government bureau?

Certainly the cost of medical care has risen. The payroll of the average hospital takes two-thirds of the budget. Tremendous progress in diagnostic and therapeutic procedures cost money to develop and to perform. To name a few: new and expensive laboratory procedures such as steroid and enzyme studies; various blood chemistries, to tell how much of certain chemicals there are in the body; new procedures related to the field of X-ray, such as radio-isotopes, dye studies, and the cobalt bomb. The people deserve and demand the best. They are being provided with the best. However, it takes a great deal of money whether it be through tax dollars or through private dollars.

Another factor in the increased cost of medicine is the cost of drugs. These same drugs have eradicated some of the infectious diseases which used to kill and debilitate for long periods of time. These same drugs control some chronic ailments, such as arthritis, so that a person can be gainfully employed. If these could be measured accurately in dollars, one would clearly see how much is actually being saved per capita. If one could compare the dollar loss per illness of twenty years ago with the dollar loss today, taking into consideration population growth, one could see clearly this saving, not to mention the saving in lives and suffering. On the other hand, poorly regulated government sale of patent medicines are a drain on us economically. False claims made by their distributors mislead poorly informed people concerning the hazards of self-treatment. This too, adds greatly to the cost of medical care.

Last, doctor's fees have risen less than the per cent increase of the cost of living.

In these rapidly changing times, exactly what are these leaders asking for? Is it that these leaders have other motives now that unionism is well organized and the workers lot greatly improved? Is it purely a power politics maneuver in the guise of social welfare? *Are their promises to the worker more tangible than the accomplishments of men of medicine and the medical sciences?* Medicine can only point out the past and the present progress which is being dynamically projected into the future. Let not our memories be short and our emotions be swayed by statistics which can be made to belie the facts. If the labor leaders are interested in aiding the medical welfare of his countrymen, let him educate his followers regarding the tremendous financial and health losses that are caused by people who see cultists and by those who buy patent medicines. Let the unions set up scholarships to educate the many wasted minds of our youth, many of whom would go into the medical sciences. Thereby, we would eliminate any mediocrity and raise the high standards that prevail still higher. Let them advise and cooperate with the medical profession to improve the whole picture wherever it is necessary and not make demands that can only irritate all parties. There has been a slight start in this direction. May it continue. Again I ask, wherein has medicine failed?

Government and Medicine

Then we have government. By law, the cults have become legal entities with licenses to practice according to specifications limiting their scope. In this scientifically advanced and oriented so-

ciety is there a need for these cults? An open mind will accept valid proofs. The challenge is made. Government agencies, such as the Public Health Service, Veterans Administration, and the military services, recognize only the medical profession. Why aren't the abilities of the cultists employed? If the medical profession and its allied sciences have not encompassed all of the fields which the other healing arts claim, and more, haven't brought forth progress in all of these fields, then all of the "healing arts" must be eliminated and one medical profession instituted to accomplish this.

There are pure food and drug laws in existence which are not enforced to their maximum. Patent medicines are another source of economic and vital loss to the people. Cleverly worded advertisements may be within the interpretation of the law, but are not within the moral intent of the law. Morality is sacrificed to legality, which is "good business" and bolsters our economy. At what price!

Many insurance companies are engaged in medical health insurance coverage. A few of these companies have policies whose fine print restrictions coupled with clever salesmanship and advertising, all within the law, gouge countless dollars from unsuspecting, trusting people. Illness, not covered by their insurance policy, brings forth this realization too late. Morality again gives way to legality. Whom do the laws really protect?

In many respects the meaning of the word freedom is misinterpreted. Should groups be free to exist and thrive on the ignorance of uninformed people and flount the laws instituted for the protection of the people? For what are we accumulating knowledge if it is not to be utilized correctly and to best advantage? We no longer look into crystal balls or look to see how the eagle lands to tell what is true. Nor do we hook one up to a machine with electric attachments to find out what ails a complaining person. Those days are gone. Responsible elected representatives to government must be cognizant of these facts and restudy the whole field of the healing arts, and enforce the pure food and drug and insurance laws according to their original intent. If legal means can't be taken to curb these drains on our economic and vital wealth, then means must be made available to educate the public about the truths of these matters.

Finally, some bureaucrats in government want to legislate government controlled medicine. The word government is not synonymous with utopia. Is it not the responsibility of our form of government to guide, regulate, and protect the individual rather than control by legislation? Is medicine to be thrown into the political arena in the guise of social progress? How highly do we value human life and well being?

Society and Medicine

What has the medical profession to offer in its defense? Historically, its achievements have stood the test of time. No matter in what language it is practiced, the basic tenets are the same. In the alleviation of pain and suffering of the human race, including the eradication of disease, it has been the spearhead. It is responsive to scientific truths, utilizing every known fact, tested experimentally to better man's physical and psychical well being. Just as the moon and the planets are within our reach, so too are the horizons of medical achievements, such as the cures of cancer and heart disease, the prolongation of life, et cetera. Towards these ends, all grants for medical research, whether private or governmental, are available only to the medical profession and its allied scientific groups, which work harmoniously together. Have you ever heard of any of the cults receiving such grants?

Medicine has set the highest standards for itself in the spirit of Hippocrates. Surveys have shown that the greater majority of the people are well satisfied with their individual doctor, his fees, and their relationship with him. Why then are certain groups overly and unjustly critical of medicine which is the aggregate of its individual doctors?

It has been accused of resisting social change because it has resisted socialized medicine. Is this true? Why should it want government medicine when it has successfully promoted prepaid medicine with the Blue plans, which are being expanded steadily to encompass everyone? Is this not a private socialized endeavor? Because these plans do not cover everything, and some think the government can do better, does not mean that the accomplishments so far achieved are stopping. Restless "leaders" of various groups want rapid change which can really only come slowly. There is no room for haste and chaos upon which some men thrive. Humanity deserves better than this. This is not a primitive or feudalistic society that

radical and revolutionary measures are necessary to bring about change and progress.

In the biological sciences many theories, without basis in fact, have been proposed. Skepticism is present among men of science until good factual proof is available to substantiate claims or theories. Even many medical pioneers had difficulty convincing their colleagues of scientific truths they had discovered. Truth won't be denied, and they were recognized. By such rigid requirements as the scientific method of investigation, we have been protected from unscientific and biologically harmful proposals by various people who could not convince others of their work. Is this conservatism bad? Perhaps this is the reason why the medical profession seems to be slow to changes in the eyes of various persons and groups. But, examine the record again. What is slow and obstructive in one man's opinion is sure and progressive in another's. There has been no scientific truth that has been rejected by men of medicine. They should not be censured for wanting to be cautious towards sociologic changes which some would lead others to believe will make a Utopia for us. So the Russians were led to believe with communism. They are still trying to sell their Utopia by forceful means.

There is no doubt that the medical profession has been remiss in not selling itself and its achievements, especially in relation to the cults. It has been felt that the public will only buy the best on the market. Any advertising man knows the fallacy of this thinking. Even the best article must be advertised to sell and to point out the advantages it has over its competitor. Even a monoply keeps the public informed of the progress it makes. The public cannot be blamed for its confusion about the "healing arts." We in medicine must keep them better informed of how and why the medical profession has given the most and its best to humanity, especially compared to the cults.

Doctors are Human

Medicine has been placed upon a pedestal. Doctors are thought to be infallible and workers of miracles. As a consequence, any error is magnified out of proportion to its importance. Of the twelve men chosen by Christ to follow Him, one failed to be guided by His spirituality. Admittedly there are a minority in the medical profession who, similarly, are misguided and of poor quality. They are being eradicated as they are found out, and this is a difficult task. It's like trying to get rid of the narcotics racketeers, whom we know are peddling their narcotics, but no one seems to be able to put his finger legally on one of them. Point out the just criticisms. No one wants to be criticized unjustly. However, when the facts verify the claims, corrections will be promptly made. All will be well rewarded for the mutual trust and understanding that should prevail in this great country of free enterprise.

TOTAL HILL-BURTON PROJECTS

Latest report by the USPHS reveals that, up to August 31, 1959, total estimated cost of Hill-Burton hospital projects since the program's inception in 1946 was $3,973,591,569. Of this amount, the Federal share was $1,219,202,569. Cumulatively, the program includes 4,659 projects, of which 3,253 are completed and in operation, 1,180 under construction and 226 in preliminary stages.

Grant approvals in August ranged from $10,000 to help finance a small health center in St. Stephens, South Carolina, to $278,826 for the diagnostic and treatment unit under construction at Woman's Medical College in Philadelphia. Also on the August approval list was a rehabilitation center in Little Rock, Arkansas, all but $45,000 of its estimated cost of $135,000 to be borne by Hill-Burton grant funds.—WRMS

Editorial

THE ATOM IN PEACE AND WAR

THE JOURNAL of March, 1952, was devoted to "Treatment in Disaster" and was a special Civil Defense number. Now, seven and a half years later, THE JOURNAL devotes its October issue to the atom as encountered in peace as well as in war.

In the intervening period, much has happened of considerable importance. First, thermonuclear energy as an incomprehensible destructive force has become a prime military weapon. Second, the atom has become increasingly important in medicine in an effort to understand physiologic processes, sharpen diagnosis and assist in saving people. Thus, the same modality is concerned in two utterly diametric purposes.

In the articles dealing with the destructive aspects, the present Michigan planning is considered. In addition, the radiation effect on civil populations, formerly thought minimal, is discussed. The articles dealing with peace-time applications include a fine discussion of the use of radioisotopes in medicine; and there is an article which points out the uses of isotopes in industry.

It should be noted that the material in the March, 1952 issue of THE JOURNAL is not one whit outmoded. The present series augments the earlier one, and the two issues are worthy companions.

Much has been said and written in the past seven years about Civil Defense. Its importance has been questioned. Evacuation versus shelters for protection has been debated. To some degree, concerned medical people have taken sides. But the decisions must be made, finally, by civil authorities.

The rôle of the doctor is to care for the injured and the ill. It matters not what the final decision may be, since regardless of what it might be, the doctor's job is the same. If the major reliance is on shelters, at some time after an attack all surviving physicians will have to mobilize to care for the population. If evacuation is the major reliance in Civil Defense, and that is all we have at this time, doctors will still need to care for people.

No matter how great the destructive force, there is always a tapering off of its effect the farther one gets from the epicenter. In the peripheral zones, there will be a huge number of injured people whose lives will be saved by the activities of physicians. This cannot be done alone by the physicians in a stricken area. Required will be the compassionate aid of all physicians in the state, mobilized for just that purpose.

Thus, it is necessary for all physicians in Michigan, as well as the paramedical disciplines, to develop awareness of not only what they can do but also how they can discharge their responsibilities in the most efficient manner. We are appalled by the huge numbers who will be killed; but our great concern will be with the huge number who can be saved.

We urge you to read the excellent articles in this issue of THE JOURNAL. We urge you to save it for future reference. We would wish that what is written will give you pause for serious reflection and result in a firm determination to play your part—in peace and in war.

MAX L. LICHTER, M.D.

EDITOR'S NOTE: The October, National Defense Number of THE JOURNAL, has been produced under the help and direction of the Committee on National Defense of the Michigan State Medical Society. Credit for papers and materials and assistance in assembling goes to a subcommittee consisting of C. F. Anderson, M.D., Chairman; Carl Sprunk, M.D., and Rosser L. Mainwaring, M.D. All this was under the guiding supervision of Max L. Lichter, M.D., who also aided in producing the first medical journal devoted to National Defense, over seven years ago.

EDITOR'S COMMENTS

These editorials are being written in the last few days of August, a month before the meeting of the House of Delegates. This much time is needed to prepare the editorials; to submit them to the Publication Committee, officers and advisors, for confirmation and correction; then to get them in type, proof-read, and ready for THE JOURNAL. They cannot possibly be distributed to our membership until after the Annual Session, after the meeting of the House of Delegates.

We have always believed that given time and occasion, the medical profession can and will solve correctly any problem revolving around the care of patients.

Harmony

President's Page

Milton A. Darling

President

Michigan State Medical Society

Of necessity, this editorialization is prepared prior to my actual ascendancy to the office of President of the Michigan State Medical Society. Publishing THE JOURNAL is a big job and its deadline is about forty days prior to the date you receive it.

So for me to appear in the October issue as President, we had to fudge a bit and write this in advance. That would be all right except for the fact that a very important meeting is taking place between now and the time you read this.

I refer to the 1959 Annual Session of the House of Delegates. This may be one of the most momentous meetings in the nearly 100 years of MSMS existence, and I have no crystal ball to foretell what will be decided.

Even with no magic mirror, I'll make a little bet with you. I'll say that the Michigan State Medical Society will be doing business at the same stand with the same vigor and with the same harmonious spirit that has characterized its work in the past.

Frankly, I think it's good for our organization occasionally to have differences of opinion within itself. It shows that our members think their state organization is of sufficient importance to have an opinion—and make it count in policy determinations.

Not that *any* organization can permit intemperate actions or hasty decisions to characterize its work simply to satisfy a group—no matter how large or small the group is.

After all, doctors are usually pretty sensible and practical, even judicious, or they wouldn't be doctors very long.

THE M-75 CONTRACT

The M-75 program which has been sold to nearly two million people was based upon the results of surveys, opinion studies, two special reports from the Owen Committee and the Slagle Committee, and a special Medical Care Insurance Committee authorized by the House of Delegates, which confers constantly in the preparation of the program. Consultations were held with the medical groups, subscriber groups, specialists in insurance, legal advisors and the State Insurance Commissioner. This was necessary to determine coverage and very essentially to determine verbage of the contract and procedures of administration. The M-75 contract was a completely new concept in an attempt to give to the public as broad and advanced a pre-paid medical service policy as possible, and to offer the medical profession an acceptable and satisfactory vehicle for dispensing their services to their patients on a voluntary basis—without governmental interference or supervision.

Nothing was included which did not have basic authority in the surveys and instructions from the House of Delegates. The principles involved were established by the House of Delegates. The wording and the detail of necessity had to be worked out by smaller committees, legal advisors, actuaries, the State Insurance Commissioner and the Attorney General.

Realizing that every item could not possibly be covered when the questions would arise, provisions were set up in the program by which the Councilor District Medical Care Insurance Committees could hear complaints or criticisms, and correct them. It seemed like an ideal creation in the face of so many increasing demands for services, for extended coverage, for increased payment to the doctors. This was to substitute for a policy which had been created many years before and was entirely out of date.

When the policy was ready for sale to the public—and even before, some criticisms began to develop. The amount and method of payment was of prime interest. One of the first and most annoying criticisms was to the effect that a specialist, certified by a medical board, would be paid the same rate as any other doctor who rendered that specific service. From the inception of Blue Shield, that question has been raised. The original Blue Shield Board down through the years asked those making such objections to propose a formula by which their demands could be met and also be accepted by all doctors rendering service, and which could be sold to the subscribers. Many suggestions have been made, and in California the original relative value scale actually was four. It was unsatisfactory and is now being rewritten. The Permanent Advisory Committee on Fees was instructed by the House of Delegates to work out a scale suitable for Michigan, but until that time, to use the California scale insofar as it could be fitted to the Michigan program. The Michigan Committee was granted a limited amount of money to accomplish an enormous job.

$7,500 Full Coverage

There was immediate objection to this particular feature by some of our doctors. The survey responses received from doctors seemed to warrant this increase to $7,500 income grouping, but the objections are primarily against the method of determining the income limit rather than the limit itself. It is possible that a different interpretation could be authorized.

The method in the contract was considered the best where the employer designated the contract which his employe should take. It was the intention not to allow high income persons to take low income policies, and the employer had the figures on hand which would automatically classify his employe. M-75 fee schedules were adjusted upward 15% approximately, to accommodate this new income determination system. Another exception might have been made leaving to the doctor the responsibility of determining the income level of his patients. That was avoided, however, because in the early years and in the 1957 doctor survey many of the doctors asked Blue Shield to make that distinction which involved much extra work at headquarters, these policies running into the millions.

Participating Doctors

In its beginning years, Blue Shield was so completely new that insurance companies refused any consideration, and the State Insurance Commissioner demanded that the Medical Society secure a list of "participating" doctors in sufficient number to guarantee that services would be performed. Those who participated agreed to accept what Blue Shield could pay as payment in full. Under these limitations, the Insurance Commissioner insisted that over 80 per cent of our membership sign up

as *participants* before he would allow the policy to be sold. That was an unfortunate word imposed upon us and accepted by the Society in establishing the M-75 program. The House of Delegates considered participation necessary and appointed a committee to secure and report periodically to the membership on its success. No policy was sold until an acceptable number had signed up to participate in the new program. New studies among the doctors had indicated a belief that non-participating doctors were getting undue benefits from the program, without assuming any of the risks.

The two committees appointed by the House of Delegates and the Council made extensive studies, interviewed many groups, and both recommended that participating doctors be paid directly, but that non-participating doctors be paid directly only if they presented an assignment from their patient. This committee appointed by the Council, two-thirds of whose members were also members of the Board of Directors of Blue Shield and intimately familiar with the program, decided to eliminate that recommendation before it was sent to the House of Delegates. The Owen Committee (a committee of the House of Delegates) had been instructed to make its report to the House of Delegates by the 15th of August and they included it.

The "principles" adopted by the House of Delegates contained that item; therefore, a payment provision was made in the new policy. This provision met a storm of objection. The Council had eliminated this item. It would seem now that we could eliminate this word "participate" which was foisted upon us and which has created such embittered objections. The original word which was included in the enabling act developed by the Michigan State Medical Society was "registered."

Section 2 reads:

"Whereby medical care is provided at the expense of such corporation to such persons or groups as shall become subscribers to such plan under contracts which will entitle each such subscriber to definite medical and surgical care, appliances and supplies, by licensed and *registered* doctors of medicine."

Also in Section 10:

"Each doctor of medicine, licensed and registered under Act 237 of the public laws of 1899 as amended, practicing legally in this state shall have the *right to register* with the corporation for general or special medical care as the case may be."

A third mention appears in Section 12:

"A non-profit medical care corporation shall not furnish medical care (or) otherwise than through doctors of medicine, licensed and *registered* under Act No. 237 of the public acts of 1899 as amended."

This particular clause was declared null and void by the Attorney General in the early years "for the public welfare," because the state recognized that osteopaths render medical services.

We suggest that the Michigan State Medical Society officially abandon the word "participation" and adopt the word "registered", also that the State Insurance Commissioner recognize that after approximately twenty years of service, the Michigan State Medical Society and Michigan Medical Service will not default the promised services guaranteed to the people who purchase certificates of prepaid medical care. Under such a ruling, every registering doctor would automatically be a guarantor of the services contracted. If conditions should change and Blue Shield became financially unable to pay for the services promised, the doctors would have to take a pro-rating and be thankful.

Three quarters of the doctors actually in practice now never saw the time when there was no insurance, when nothing was prepaid or budgeted, or when the problem of collecting for services after they were rendered (and sometimes long after) caused a loss of 40 to 50 per cent of the charges. In general, the Blue Shield payments are adequate. For certain items and for certain highly trained specialists, they may be here and there inadequate. The Blue Shield movement has taught people to prepare, to budget, and to make payments with much better grace and at less cost to the doctor. Just this one item of prompt payment is worth all the headache and frustration suffered by the hundreds of pioneers who developed a completely new industry in insurance, and a completely new concept of what the medical doctor owes to his patients—providing the means by which they may obtain his services honestly, honorably, and without embarrassment.

The Senior Citizen Benefit

The Blue Shield Senior Citizen Benefit is a completely new concept of insurance for elderly people, making it possible for them to buy limited but rather adequate medical, surgical and hospital services. A remarkably small payment gives a guarantee of complete coverage to those of low and inadequate income. There have been editorial

comments in newspapers and elsewhere to the effect that the newly authorized program may be too expensive, especially where it involves hospital care. In setting up this program for those over sixty-five, Blue Cross reduced certain lengths of stay and increased the rates in an attempt to cover the known and the anticipated increased utilization. If the sale of these programs should bog down on account of expense to this low income group, it would seem that Blue Cross could adopt a new philosophy in this one contract. It could provide the most intensive care needed for the acutely ill patients for the first few days; after the patient demanded less care, he could be moved on ward service—or partial self service. The patient could be transferred to a special ward under a special bookkeeping arrangement, by which the room and board service would be paid and the costs reduced from the present $32 or more a day to $6, $8, or $10 a day. That one item probably could reduce the cost of this particular service or could extend the number of days by three or four times.

We have mentioned this program before—not in respect to senior citizens—but trying to find an answer to over-crowded conditions and increasing charges. Most of our hospitals have been overcrowded during a large part of the year, necessitating the doctors (even the most renowned of them) to discharge one patient to get in a new acutely sick one.

It would seem that hospital construction in larger or even medium-sized cities could provide detached units where many of the patients who are simply occupying beds could be adequately cared for and helped on the road to recovery. This concept is being accepted now in a few hospitals throughout the land. The American Hospital Association is beginning to recognize that there are actually four stages of hospital care which should be available at different times to patients staying more than just during the acute stage of their illness.

GOVERNOR'S COMMISSION

Late in 1955, Michigan Hospital Service asked the Commissioner of Insurance for a 30 per cent increase in premium rates. This request met with immediate and extended protest. The allowance was delayed, the Commissioner asking for time and further information. The Governor appointed a Commission "to study the operation of these prepayment plans, and to make recommendations regarding methods to reduce cost, expand present coverage, and provide additional benefits to more people in the state" and at the same time study medical costs since they were so intimately involved.

From February 20, 1956, far into September, the papers were full of reports and hearings blasting Blue Cross and Blue Shield, accusing them of every conceivable fault. The Commission at last reported, advising that a thorough and exhaustive research study be made by certain selected and named groups at the University of Michigan. It would have involved $200,000 and would take two years. There was no money and no unanimity of acceptance, fearing prejudice.

The Kellogg Foundation at last appropriated the money ($327,000) after being assured by Blue Cross, Blue Shield, the Michigan Hospital Association and the Michigan State Medical Society that each would completely co-operate, would have confidence in the newly designated Study Committee, and be prepared to accept the findings. This study is now far advanced, and final reports are promised by May, 1960.

Relative Value

The Committee to develop a relative value scale in Michigan is making progress and has almost completed its survey questionnaire for the membership. It is hoped every member, when he receives this questionnaire, will answer it carefully. When that material is assembled, the real work of analysis can be done by already selected statisticians. Until this work is completed, one other element is working in our favor—time. The new M-75 program in all its intricacies needs trial and experience to work out the "bugs." It took over two years in Michigan before the original Blue Shield worked satisfactorily and was accepted by rapidly increasing numbers of subscribers and the great majority of our doctors. Nationally, it took ten years. That is the reason self-correcting features were included in the M-75 program.

Time, confidence in ourselves, and working together can and will solve what seem like insurmountable problems.

"STAND TALL"

One of the earliest admonitions we can remember was "Stand tall". My father was a doctor who was six feet three in height and proud of it. His advice was always "stretch tall at night, in the

morning, always when lying down, instead of doubling up". He also suggested to walk erect with head up and shoulders straight.

At the University, the head of the Physical Education Department, Dr. May, always started the required course for freshmen, "Stand erect, chest out, head back, stand tall." We feared this admonition was passe because so many young high school and college students, even athletes, seem to walk and stand hunched forward as if trying to hide their tallness instead of being proud of it.

We were reassured when one of our Sunday (August 23) papers offered the following:

Posture Vital to Student Health

Everyone agrees that the basis of good looks is good posture. Good posture also unquestionably contributes to good health and well being. The lovliest of clothes will not look good if their wearer is handicapped with posture problems.

Children should be taught to stand up straight, to stretch tall every day, and to do a few simple exercises daily to improve their posture. Walking with head up and spine straight is taught by physical educators and physicians for maintaining nerve health and body health.

Early training in posture can pay off in health benefits in adult years.

BLUE SHIELD AND THE NEW CHALLENGE

The American doctor's eternal struggle to preserve his professional freedom is now being waged in a new arena. Ten years ago, the big question was whether medicine could develop a viable prepayment program by its own voluntary effort, aided by labor, management and local community leaders. The alternative then was the threat of compulsory health insurance, governmentally operated and controlled.

The product of our initiative—and of the people's tremendous response—is the vast Blue Shield-Blue Cross complex, supplemented by a tremendous expansion of the insurance industry's effort in this field.

Both the medically-sponsored nonprofit plans and the commercial insurance programs are based upon the traditional pattern of free choice of physician, fee-for-service, and the private relationship of patient and doctor.

In some segments of our economy today, both labor and management are showing a lively interest in providing medical care through a "closed panel" program, in which free choice would be limited, fee-for-service would be replaced by salaries or capitation payments, and the direct personal responsibility of the physician would be subordinated by collective controls.

The American Medical Association has acknowledged the legitimacy of these alternative programs and the right of the patient to choose the pattern or plan through which he wishes to prepay his medical care. This is realism.

But it is also realistic for us physicians to realize that ultimately we can preserve our traditional pattern of medical service only if our patients find that it meets their vital needs better than any other program.

Our own Blue Shield Plans offer us the best—and only—instrument through which we can control the economy of medicine and determine the shape of medical practice in the future.

But Blue Shield is *only* an instrument. The understanding, vision and leadership required to perfect this instrument—so that it will serve satisfactorily the needs of our patients—must come from us, acting through our county, state and national medical societies.

PUBLIC HOSPITAL BUILDING GAINS

Publicly financed hospital and institutional construction in first half of 1959 had an estimated value of $211 million. This was 19 per cent ahead of the total for corresponding period in 1958. For hospital and institutional projects supported privately, the estimate of $275 million represented a 9 per cent drop from the first half of last year.

The estimates were supplied by Departments of Labor and Commerce in the joint periodic report.—WRMS.

PREPAY HEALTH PLANS HEARING

Long overdue is the Congressional inquiry into premium charges, operating costs and other fiscal aspects of nonprofit health insurance plans which was to have been conducted early in 1959 by a Senate group. But it now appears likely that the hearings will be scheduled in very near future. At the helm will be Senator Wayne Morse (D., Oreg.). Theoretically the investigation will be limited to Blue Shield, Blue Cross, Group Health Association and other programs exclusively in D. C. It is regarded as inevitable, however, that testimony will be taken additionally on plans operated elsewhere.—WRMS.

Obstetrical Brevits

INTRODUCTION

The Maternal Health Committee of the Michigan State Medical Society has selected this title under which we hope to present a series of short editorials, written by members of our Committee and designed to inform readers of THE JOURNAL about our maternal mortality study. Some articles will be designed to express our ideas regarding controversial obstetrical subjects. We shall avoid detailed statistical analysis and yet try to summarize the experience of this committee. All of us reviewing case studies of maternal mortality feel a sincere sympathy for the attending physician confronted with some very confounding problems. We indulge in these studies not for criticism, but with the scientific interest that a pathologist might attack a post-mortem problem. All cases presented or discussed are being carefully reviewed by our committee and by the legal advisor of the State Medical Society so that no identification or embarrassment of the attending physician may ensue following these publications.

The review shows, over all, a tremendous decrease in Michigan's obstetrical deaths. We do, however, have avoidable maternal deaths and as long as preventive measures are possible, we must continue our efforts to improve obstetrical care.

This committee has concerned itself recently with perinatal mortality because it believes that, here again evaluation of the quality of obstetrical care is expressed. The editorials will mention and define perinatal mortality and its significance.

We wish to urge each County Society to form and activate a Maternal Health Committee. The State Maternal Health Committee and the Michigan State Health Department will be happy to cooperate in the organization of these committees. Our committee has speakers available or will welcome discussion questions to be answered when so desired. We would appreciate suggestions regarding these editorials or any aspect of maternal health in Michigan.

Remember to look for "Obstetrical Brevits".

ECTOPIC PREGNANCY

The Michigan Maternal Mortality Study clearly shows the importance of ectopic pregnancy as a cause of death. Hemorrhage is the leading killer, and ectopic pregnancy is second only to ruptured uterus in this category. Many of these deaths are preventable, for early diagnosis and proper definitive treatment will prevent massive intra-abdominal hemorrhage and irreversible shock.

Two important factors in preventability are (1) failure of the patient to consult her doctor before tubal rupture occurs (2) failure on the part of physician to recognize early ectopic symptoms. Prevention of the first factor must depend on public education, advising early consultation in pregnancy. The second preventable factor, failure of recognition by the physician, demands constant thought of ectopic pregnancy. It must be kept constantly in mind in diagnosing female patients, just as appendicitis is a condition to consider in patients of both sexes. With the triad of delayed menstruation, vaginal spotting and lower abdominal pain, a diagnosis of ectopic pregnancy should strongly be suspected. Colpotomy or colpocentesis are important aids in establishing the diagnosis. The treatment, by vaginal or abdominal approach, is strikingly more simple in the unruptured or early ruptured state, as compared to the "belly full of blood", with deep shock, sometimes irreversible.

An example from the files of the Maternal Mortality Study demonstrates factor number one. A patient (Case 579) was admitted to a Michigan hospital in deep shock, not having consulted a physician. Within three and one half hours, she was pronounced dead, dying of massive intra-abdominal hemorrhage and irreversible shock.

Factor number two may be demonstrated by Case 625 from the files. In this case, a diagnosis of ruptured ectopic pregnancy was made, but surgery was delayed, in the hope for improvement in the patient's condition. Surgery was performed, but too late, for the patient expired in irreversible shock.

We would recommend that every physician refresh his memory on the diagnostic signs and symptoms of ectopic pregnancy, so that these preventable tragedies may be avoided. If a diagnosis is suspected, find out, but do not procrastinate. An unnecessary colpotomy or laparotomy is much better than a dead mother.

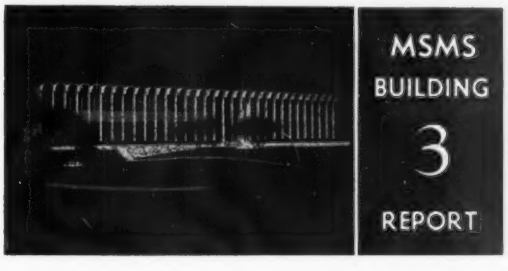
The Silent Service
. . . THAT COMMUNICATES

In the future, messages from Michigan State Medical Society will be processed in an efficiency-engineered Processing Room on the lower level of the new MSMS headquarters building.

BASEMENT - SW SECTION

looking AHEAD

MSMS Committee on Big Look presents its third monthly Building Report



Mechanically, the printed-word communications system of the Michigan State Medical Society is an intricate one. It has to be in order to turn out more than 230,000 pieces of mail each year and mimeograph countless thousands of pages of committee minutes, agenda, reports, news releases and so on. It's a silent service—but it is the Society's major means of passing the word.

In the future this preparing, signing, sealing, stamping, packaging, etc., will be done on the lower level of the new MSMS headquarters building.

The new efficiency-engineered Processing Room contrasts sharply with the cramped facilities in the present Townsend basement, where ceilings are head-banging low and lighting is what you would expect in the cellar of a 100-year-old house.

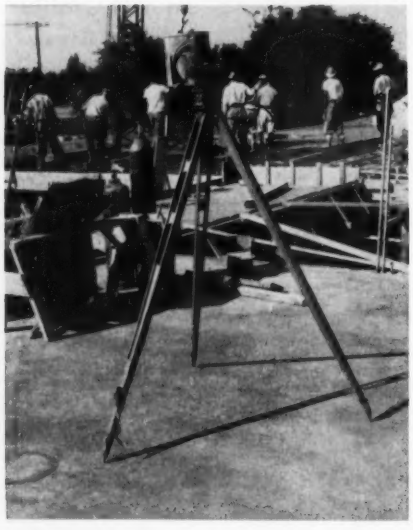
The maze of equipment needed for rapid and efficient processing of MSMS communications is eye-opening, indeed. Perhaps basic to the whole operation is the addressograph machine with accompanying address-plates for 6,700 MSMS members, 3,500 Auxiliary members, 500 newspapers, radio and TV stations, the Michigan State Medical Assistants Society and others.

In addition, there is the automatic mimeograph machine, collator, Pitney-Bowes postage machine, IBM equipment, folding and stapling machines and a number of smaller auxiliary aids.

Currently, MSMS uses the services of a commercial house for printing of publications requiring more than a thousand copies. However, space in the new Processing Room will be provided for future installation of multigraph or offset printing equipment when work volume reaches the point where this would be economically advantageous.

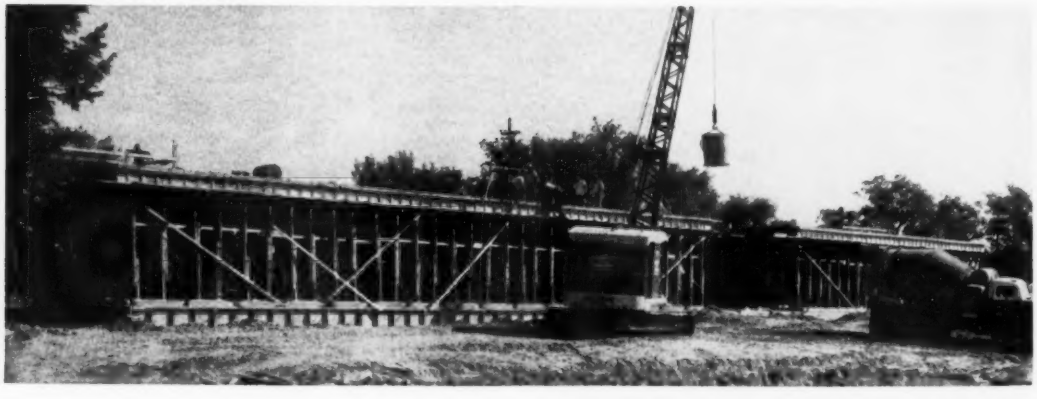
Adjoining the Processing Room is a Literature Storage Room which will contain at the outset, thousands of copies of over 150 different publications ranging from throw-away leaflets to major scientific treatise, all ultimately to be included in mailings to members and the public.

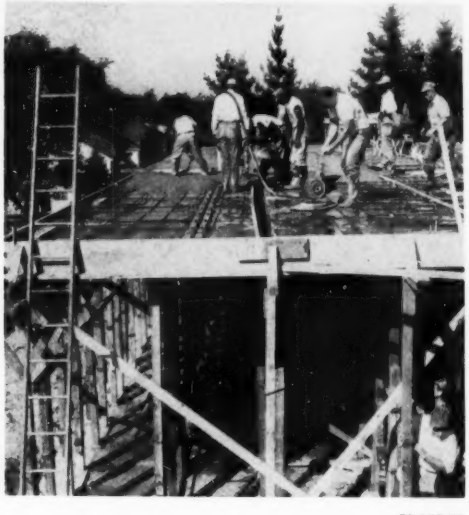
Unheralded, the production and processing employes and facilities provide the vital avenue whereby messages that mold society action reach MSMS members.



New MSMS Headquarters TAKING SHAPE

Work on the new MSMS headquarters, which began May 18, continues at a rapid pace. These photos, taken in early September, show work progressing as the two-story building rises.





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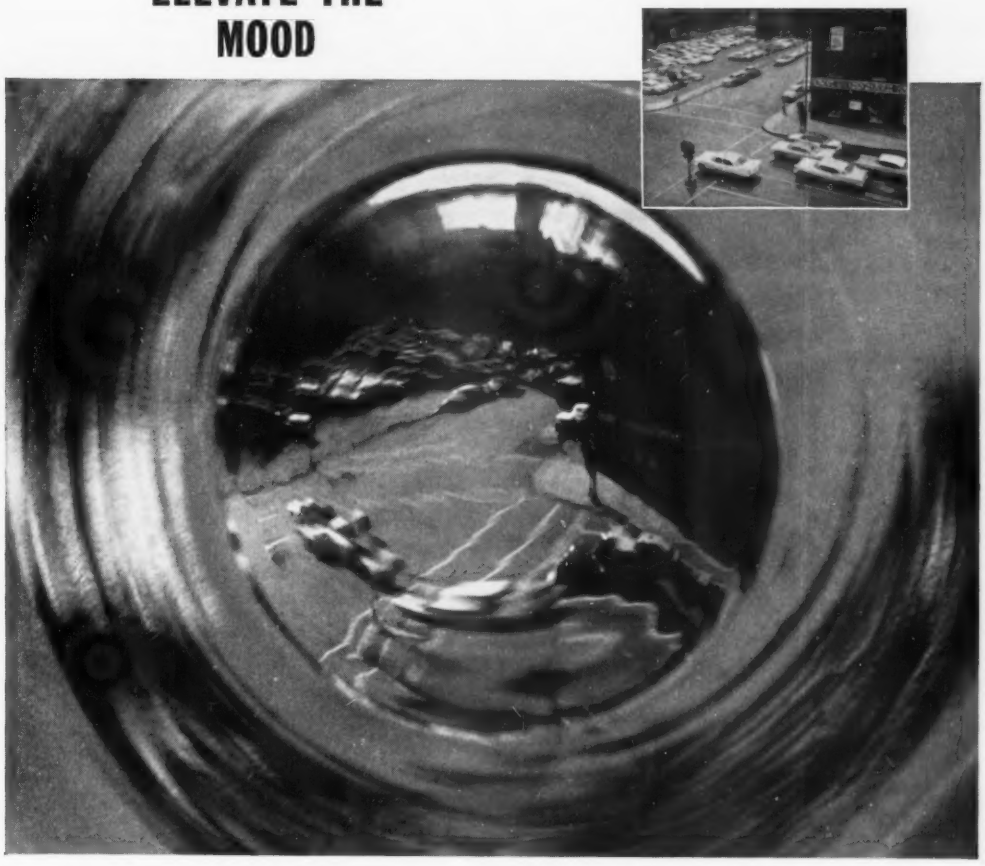

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*Pratt, R. T. C., and McKenzie, W.: Anxiety States Following Vestibular Disorders, Lancet 2:347 (Aug. 16) 1958.

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Michigan's Department of Health

Albert E. Heustis, M.D., State Health Commissioner

RABIES SPECIMENS

Our subject this month: The over-ripe carcass of a dead raccoon and the U. S. mails.

Opening mail is a pleasant ritual to which we are all, more or less, addicted. Even though it may regularly contain nothing more than a collection of promotion pieces, an assortment of bills, and a payment or two; the unopened mail always breathes a faint promise.

Consider, then, the effect of opening a parcel only to be greeted by the decomposed remains of a raccoon suspected of having died of rabies. Such an experience can reasonably be called traumatic. The optic and olfactory nerves are severely insulted. The possibility of a recurrence of such an experience casts a pall which takes months to dispel.

Mildly speaking, such a shipment by mail is offensive. It is also illegal. The U. S. Post Office expressly forbids the sending of deceased animals. Yet, every year the Michigan Department of Health receives a certain number of such remains: dog heads, bats, skunks, squirrels, raccoons—through the mail.

It is not simply a matter of legality, either. We are expected to perform certain laboratory tests on these remains. Try finding Negri bodies in a decomposed dog head sometime. It can't be done. The result: you can't get the report for which you went to the trouble of mailing the head.

So, please remember—don't mail dead animals or animal heads. Have them brought in if possible, or send them by express, properly prepared and packaged. Whenever possible, a specimen to be examined for rabies should be delivered directly to the Michigan Department of Health, Division of Laboratories, Old Dewitt Road, Lansing 4, Michigan. When shipping the head, the entire head of the animal should be removed in such a way as not to destroy brain tissue. The head should be severed from the body at approximately the second or third cervical vertebra. Sanitary precautions, such as the use of gloves and careful washing of the hands, should be observed for the protection of the handler in preparing specimens for shipment to the laboratory.

The following information should accompany all heads sent for the examination of rabies: name of sender, address of sender, owner's name and address, animal and breed, date of death, whether killed by an officer, shot or injected, clinical diagnosis, and any exposures (persons bitten). This information should accompany the head either in a letter or on Form F292, Michigan Department of Health. Copies of this form will be sent upon request to the Michigan Department of Health, Lansing 4, Michigan.

Another source of rabies examination is the Detroit Department of Health, Bureau of Laboratories, Herman Kiefer Hospital, Detroit 2, Michigan.

The Railway Express Agency has issued to all agents the following regulations for shipment of specimens:

"1. Rules and regulations governing the shipment of the heads of dogs or other animals by express to laboratories of state boards of health or other laboratories:

"(a) Agents must not accept for transportation the head of a dog, or any other animal, sent to state boards of health for rabies examination unless it shall have been prepared for shipment as hereinafter provided.

"(b) The head of a dog or other animal so shipped must be placed in a tin can or other metal container, which will not permit the leakage of fluids. Such container shall then be placed in a second metal container with ice packed around it; such outside container must be so constructed that it will not permit the leakage of the ice water. DO NOT SHIP MORE THAN ONE HEAD IN A CONTAINER. DO NOT USE CHEMICAL PRESERVATIVE.

"(c) All such packages must be labeled: CAUTION —This Package Contains the Head of a Dog (or name of other animal) Suspected of Having Died of Hydophobia.

"(d) Such shipments tendered on Saturday, which cannot reach destination early enough for delivery on that day and would, therefore, remain in the express office over Sunday, must be refused and shipper requested to pack in ice and hold until Monday so that they can be delivered without delay at destination.

"(e) Require prepayment of charges on shipments of this kind."

If you will follow the above procedures, we at the Michigan Department of Health will be able to promise better service—and you won't run into trouble with the law.

DISBURSES $1,240,251 IN GRANTS

The Smith, Kline & French Foundation disbursed $1,240,251 in grants to science, education and charity during 1957 and 1958, it was disclosed in a report released by the trustees of the organization.

This brought to $2,698,127 the amount given by the Foundation since its inception in December, 1952. The amount disbursed in the last two years almost equals the $1,447,876 which was distributed during the previous four years:

MICHIGAN—$14,000

Kalamazoo College, Kalamazoo	$2,500
Lafayette Clinic, Detroit	5,000
University of Michigan College of Pharmacy, Ann Arbor	1,500
Wayne State University, College of Medicine, Detroit	5,000

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tastes good! Each daily cherry-flavored teaspoonful dose (5 cc.) contains:

l-Lysine HCl	300 mg.
Vitamin B_{12} Crystalline	25 mcgm.
Thiamine HCl (B_1)	10 mg.
Pyridoxine HCl (B_6)	5 mg.
Ferric Pyrophosphate (Soluble)	250 mg.
Iron (as Ferric Pyrophosphate)	30 mg.
Sorbitol	3.5 Gm.
Alcohol	0.75%

Bottles of 4 and 16 fl. oz.

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Clings to itself — prevents slipping
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In Memoriam

Benzion C. Baron, M.D., fifty-three, Munising physician for twenty years, died August 3, 1959, after a long illness.

Doctor Baron was born in Russia in 1906 and came to the United States at the age of five. He was graduated from the medical school of Northwestern University, Evanston, Illinois, and interned at Los Angeles County Hospital, Los Angeles, California, after which he spent a year in residency at Cook County Hospital, Chicago. After practicing medicine for a short period in Crystal Falls and Wakefield, he came to Munising in 1939.

Doctor Baron served as a major in the Army Medical Corps in World War II. He was a member of the Munising board of education from 1952 to 1955 and was a past president of the Munising Rotary Club.

Arthur C. Blakeley, M.D., seventy-five, of Detroit, died August 20, 1959, after a long illness.

Doctor Blakeley had practiced medicine in Flint for thirty-five years and was a Life Member of the Genesee County Medical Society and the Michigan State Medical Society. He graduated from Ferris Institute and the Detroit College of Medicine in 1908, serving his internship at Harper Hospital, Detroit.

Manley J. Capron, M.D., sixty-nine, Battle Creek practitioner since 1916, died July 26, 1959.

Born in Walden, Colorado, Doctor Capron graduated from University of Illinois Medical School in 1916. Following his graduation, he joined the staff of Battle Creek Sanitarium, remaining there until 1932 when he entered private practice in Battle Creek.

Doctor Capron served in the Navy medical department during World War II, with the rank of commander. He was a past president of the Calhoun County Medical Society. Memberships included Kiwanis, American College of Geriatrics, American Board of Internal Medicine, International College of Internal Medicine, Michigan Society of Internal Medicine. He was also a Fellow of the American College of Physicians.

Wayne A. Cochrane, M.D., eighty-two, Jackson practitioner since 1921, died July 30, 1959.

Doctor Cochrane was born at Onondaga, Michigan, in 1876. He received his medical degree from the University of Michigan in 1908 and interned at Northern Pacific Railroad Hospital at Missoula, Montana. In World War I, he served in the Army Medical Corps with a rank of first lieutenant.

In September, 1958, Doctor Cochrane was given the Fifty Year Award by the Michigan State Medical Society for his more than fifty years in the practice of medicine. He was also a Life Member of MSMS.

Carlton A. Harkness, M.D., seventy-eight, Owosso physician, died August 19, 1959.

(Continued on Page 1686)

Say you saw it in the Journal of the Michigan State Medical Society

Announcing

'ACTIFED'®

Decongestant / Antihistamine

THE POTENTIATED DECONGESTANT

provides symptomatic relief of nasal congestion and rhinorrhea of allergic or infectious origin Many patients whose symptoms are inadequately controlled by decongestants or antihistamines alone respond promptly and favorably to 'ACTIFED'.

'ACTIFED' contains:	in each Tablet	in each tsp. Syrup
'Actidil'® brand Triprolidine Hydrochloride	2.5 mg.	1.25 mg.
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safe and effective for patients of all ages suffering from respiratory tract congestion

DOSAGE

	TABLETS	SYRUP (5 cc. tsp.)	
Adults and older children	1	2	three times daily
Children 4 months to 6 years of age	½	1	
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Universally Accepted Records, Fundamental Accuracy, Lifetime Dependability, Minimum Maintenance Expense.

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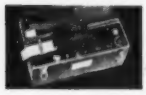

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For physiological research, cardiac catheterization and routine electrocardiography. When used with pertinent transducers, these new Recorders provide simultaneous indication and recording of EKGs EEGs, stethograms and other physiological phenomena. Available in Photographic Recording and Direct Writing Models.

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IN MEMORIAM

Carlton A. Harkness

(Continued from Page 1684)

Doctor Harkness graduated from the Chicago Homeopathic Medical College, served as a medical officer in World War I. He specialized in ear, eye, nose and throat work, first practicing in Chicago and Highland Park, Illinois, for more than 40 years before moving to Owosso in 1945 where he had practiced until his recent illness.

He was a Life Member of the Michigan State Medical Society, and a Fellow of the American College of Surgeons.

Leonard L. Henry, M.D., fifty-nine, Lansing, died August 25, 1959, after a long illness.

A native of Toronto, Ontario, Doctor Henry had been a resident of Lansing since 1926. He was a 1923 graduate of the University of Toronto Medical School. During his practice in Lansing he became an authority in the field of industrial medicine. He was a member of the Industrial Medical Association and appeared on several panels at national conventions. Dr. Henry had retired from his practice in 1955 because of ill health.

Kendall Hooper, M.D., forty-six, Flint physician, died July 1, 1959.

Doctor Hooper, a native of Grand Rapids, received his Medical Degree from the University of Michigan, later taking a year of postgraduate study at the University of Pennsylvania. He interned at Butterworth Hospital and was a surgical resident of Blodgett Memorial hospital. In 1940, Doctor Hooper entered the Army Medical Service. Upon his return to civilian life in 1942, he practiced in Flint as an eye, ear, nose and throat specialist and also did plastic surgery.

DR. PENBERTHY

Grover C. Penberthy, M.D., seventy-three, Detroit, MSMS past president and leader in civic and medical affairs for more than forty-five years, died suddenly September 2, 1959, of a cerebral thrombosis.

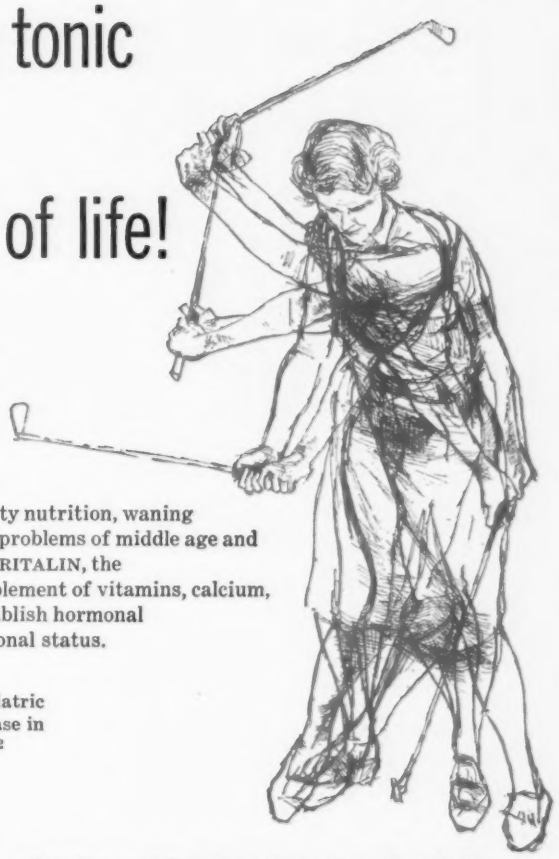
A native of Houghton, Doctor Penberthy received his medical degree from the University of Michigan in 1910. He came to Detroit in 1913 after serving at New York City Hospital. He served in both world wars and received the Legion of Merit in 1946 for his work as a surgical consultant with rank of colonel.

At the time of his death, he was serving as AMA Surgical Section Delegate and chairman of the important MSMS Permanent Advisory Committee on Fees. He served as MSMS President in 1935-36 and was a Life Member of the Society. The Society honored him with a scroll presented in March 1958 for his work in connection with the Michigan Selective Service System.

Dr. Penberthy held the chief surgeon's post at Detroit's Children's Hospital for more than thirty years.

(Continued on Page 1688)

New revitalizing tonic brightens the second half of life!



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"We found Ritonic to be a safe, effective geriatric supplement . . ."[1] "Patients reported an increase in alertness, vitality and sense of well being."[2]

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Each Ritonic Capsule contains:

Ritalin® hydrochloride	5 mg.
methyltestosterone	1.25 mg.
ethinyl estradiol	5 micrograms
thiamin (vitamin B_1)	5 mg.
riboflavin (vitamin B_2)	1 mg.
pyridoxin (vitamin B_6)	2 mg.
vitamin B_{12} activity	2 micrograms
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Remember
SERPASIL®
(reserpine CIBA)
for the anxious hypertensive with or without tachycardia

Dosage: One Ritonic Capsule in mid-morning and one in mid-afternoon.
Supplied: Ritonic CAPSULES; bottles of 100.
References: 1. Natenshon, A. L.: J. Am. Geriatrics Soc. *6*:534 (July) 1958.
2. Bachrach, S.: To be published.
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DOSAGE: 1 to 3 tablets daily as required.

SUPPLIED: As orange tablets, in bottles of 100 and 1000. Also available—

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1 Pollock, B. E., and Pruitt, F. W.: Am. J. M. Sc., 226:172, 1953.

THE G. A. INGRAM COMPANY
4444 Woodward Avenue, Detroit 1, Mich.

Grover C. Penberthy

(Continued from Page 1686)

The latest of his many civic duties was as a member of the Detroit City Plan Commission since 1957.

He was a former chief of general surgery at Harper Hospital and since 1950 had been senior surgeon on the consulting staff. He was a consulting surgeon at several other hospitals. He was professor of clinical surgery at Wayne State University and since 1920 had been a non-resident lecturer in surgery at the University of Michigan.

He belonged to a dozen medical and surgical societies and organizations and had served as president of most of them. He was a Fellow of the American College of Surgeons, member of the American Surgical Association, founder and first president of the Michigan Society for Mental Health, past president of the Michigan Society for Mental Hygiene, the Central Surgical Association and the Detroit Academy of Surgery, and a founder member of the American Board of Surgery.

Fred A. Reetz, M.D., seventy-six, Shelby physician, died August 17, 1959, after a long illness.

Doctor Reetz received his medical degree at Hahnemann Medical College, Chicago, in 1905, following which he practiced in Muskegon for four years before beginning practice in Shelby.

He was an Associate member of the Oceana County Medical Society and the Michigan State Medical Society.

Philip P. Sayre, M.D., seventy-three, Onsted physician, died August 13, 1959, after a long illness.

A native of Buffalo, New York, he graduated from the University of Michigan Medical School in 1914, and practiced in Albion, St. Louis, Missouri, and South Haven, before coming to Onsted in 1945. He was a Life Member of the Lenawee County Medical Society and MSMS, and a past president of the Van Buren County Medical Society.

DR. SHOOK

Ralph W. Shook, M.D., fifty-six, Kalamazoo, MSMS Councilor and Chairman of its Finance Committee, died suddenly, August 9, 1959, at Munson Hospital, Traverse City, after a heart attack suffered at his summer home on Rennie Lake near Kingsley.

Born at Fulton, Michigan, in 1903, he was a 1927 graduate of the University of Michigan Medical School. He served his internship at Grace Hospital, Detroit and practiced in Lake City before beginning practice in Kalamazoo in 1929. He served as Kalamazoo County physician for three years in the early 1930's.

Doctor Shook served in the Army Medical Corps in World War II, attaining the rank of lieutenant colonel. He was a past president of the Kalamazoo Academy of Medicine and a member of the Fulton Masonic Lodge.

(Continued on Page 1690)

IN REFRACTORY CONSTIPATION
IN REFRACTORY CONSTIPATION
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Grand Rapids, Michigan

Ralph W. Shook

(Continued from Page 1688)

MSMS Councilor from the Fourth District for the past eight years, Doctor Shook had served as Chairman of the Society's Finance Committee since 1954. In September, 1958, he was elected an Alternate Delegate to the American Medical Association from the Michigan State Medical Society.

DR. STILES

Frank Stiles, Jr., M.D., fifty-seven, widely known Lansing dermatologist who was active in MSMS committee affairs, died suddenly August 23, 1959, of a cerebral attack.

A member of the MSMS Committee on Venereal Disease Control for many years, he had served as its chairman since 1956.

An active member of the Ingham County Medical Society, Doctor Stiles also belonged to the Central States Dermatological Society and the Detroit Dermatological Society, of which he was a past president, and Phi Rho Sigma, medical fraternity.

Other memberships included the American Academy of Dermatology, the University of Michigan Club, Lansing City Club, and the Rotary Club.

Born in Chicago in 1902, Doctor Stiles received his medical degree from the University of Michigan in 1930 and interned at University Hospital. During World War II, he served in the navy from 1942-46.

Edwin P. Vary, M.D., fifty-four, prominent Flint surgeon, died August 2, 1959, of a heart attack.

A native of Battle Creek, Doctor Vary received his medical degree from the University of Michigan in 1903, and interned at Robert Packer Hospital, Sayre, Pennsylvania.

Doctor Vary began practice in Flint in 1938 and was chief of the department of surgery at McLaren General Hospital.

Doctor Vary served in the Navy during World War II, being discharged in 1946 with the rank of commander. In 1945, he received a citation for his "outstanding work in treating casualties during the attack on Guam."

He was a fellow of the American College of Surgeons, a member of the Central Surgical Association and a Diplomate of the American Board of Surgeons.

Carl W. Uthoff, M.D., forty-two, Grand Rapids obstetrician, died unexpectedly of a heart attack August 17, 1959.

Born in Genoa, Ohio, Doctor Uthoff graduated from the University of Michigan and Western Reserve Medical School in Cleveland, Ohio. A member of Kent County Medical Society, he was on the staff of Butterworth Hospital.

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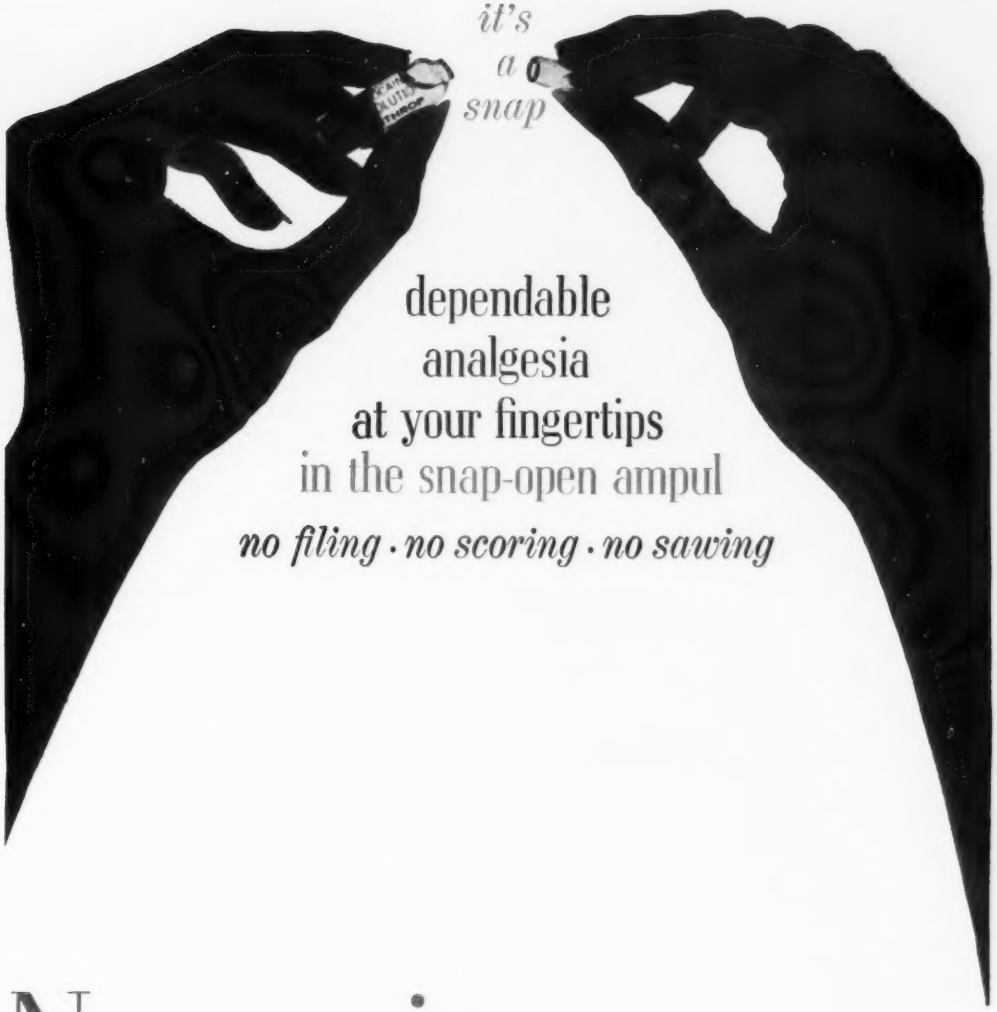

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MICHIGAN AUTHORS

Harry M. Nelson, M.D., Detroit, is the author of an article "The Cytology Program of the American Cancer Society" in the *ACTA Union Internationale Contre Le Cancer,* Vol. XV, No. 2, 1959.

Samuel J. Levin, M.D., Detroit, is the author of a chapter on "Hyposensitizing (Immunizing) Inoculations in Hay Fever and Asthma" in *Pediatric Clinics of North America,* August, 1959.

H. M. Nelson, M.D., O. A. Brines, M.D., Gerald Wilson, M.D., E. R. Jennings, M.D., and **Esther Dale, M.D.,** all of Detroit, are authors of an article, "Uterine Cytology—'False-Positive' Report," which appeared in JAMA, August 15, 1959.

Charles W. Porter, M.A., Elizabeth L. Clark, B.S., and **George E. Block, M.D.,** Ann Arbor, are the authors of an article entitled "Bioassay and Chromatographic Methods of Urinary Estrogen Determination in Mammary Cancer Patients: Their Application to Ablative Therapy," published in the *University of Michigan Medical Bulletin,* June, 1959.

Harold F. Falls, M.D., Ann Arbor, is the author of an article entitled "Ocular Manifestations of the Chronic Renal Tubular Insufficiency Syndromes," published in *A.M.A. Archives of Ophthalmology,* August, 1959.

John H. Ganschow, M.D., Detroit, is the author of an article entitled "An Eye Conservation Program for Large and Small Industry," published in the *Journal of the Iowa State Medical Society,* August, 1959.

Richard C. Schneider, M.D., Jack J. Williams, M.D., and **Leopold Liss, M.D.,** Ann Arbor, are the authors of an article entitled "Fatality after Injection of Sclerosing Agent to Precipitate Fibro-Osseous Proliferation," published in the *Journal of the American Medical Association,* August 8, 1959.

John W. Keyes, M.D., Gerald M. Breneman, M.D., and **Hernan Alvarez, Jr., M.D.,** Detroit, are the authors of an article entitled "Chlorothiazide and Hydrochlorothiazide in the Treatment of Congestive Heart Failure," published in *International Record of Medicine,* August, 1959.

Fred W. Whitehouse, M.D., and **Henry G. Bryan, M.D.,** Detroit, are the authors of an article entitled "Glucagon for Treatment of Insulin Hypoglycemia," published in *American Practitioner and Digest of Treatment,* August, 1959.

E. Thurston Thieme, M.D., Ann Arbor, is the author of an article entitled "The Management of Acute Cholecystitis," published in *G.P.,* August, 1959.

Kirk Cammack, M.D., Boise, Idaho; **Richard L. Rapport, M.D., Joseph Paul, M.D.** and **W. Claire Baird, M.D.,** Flint, are the authors of an article entitled "Deceleration Injuries of the Thoracic Aorta," read at the 16th annual meeting of the Central Surgical Association, Montreal, February 1959, and published in *A.M.A. Archives of Surgery,* August, 1959.

D. Emerick Szilagyi, M.D., Roger F. Smith, M.D. and **John G. Whitcomb, M.D.,** Detroit, read at the 16th annual meeting of the Central Surgical Association, Montreal, February, 1959, and published in *A.M.A. Archives of Surgery,* August, 1959.

Homer M. Smathers, M.D., and **Ward M. Smathers, M.D.,** Detroit, are the authors of an article entitled "Carotid Artery Occlusion," read at the 16th annual meeting of the Central Surgical Association, Montreal, February, 1959, and published in *A.M.A. Archives of Surgery,* August, 1959.

Robert E. L. Berry, M.D., Ann Arbor, and **Lewis A. Schmidt III, M.D.,** Chattanooga, Tennessee, are the authors of an article entitled "The Surgical and Nonsurgical Treatment of Gastric Ulcer," read at the 16th annual meeting of the Central Surgical Association, Montreal, February, 1959, and published in *A.M.A. Archives of Surgery,* August, 1959.

Donald R. Korst, M.D., Ann Arbor, is the author of an article entitled "Agranulocytosis Caused by Phenothiazine Derivatives," read before the regional meeting of the American College of Physicians, Traverse City, September, 1958, and published in the *Journal of the American Medical Association,* August 22, 1959.

J. E. Croushore, M.D., is the author of an article entitled "Tympanoplasty for Chronic Ear Infections," published in *The Journal of the Michigan State Medical Society,* and condensed in *E.E.N.T. Digest,* July, 1959.

W. S. Reveno, M.D., Detroit, is the author of an article entitled "Gleanings—1959 Meeting, American Goiter Association," published in *Harper Hospital Bulletin,* May-June, 1959.

Frank Mac Kenzie, M.D., Detroit, is the author of an article entitled "Harper Hospital Profiles. III Dr. Angus McLean," published in *Harper Hospital Bulletin,* May-June, 1959.

Elmer R. Jennings, M.D., Esther Dale, M.D., Harry M. Nelson, M.D., Osborne A. Brines, M.D., and **Gerald Wilson, M.D.,** Detroit, are the authors of an article entitled "Uterine Cytology—The 'False-Positive' Report," published in the *Journal of the American Medical Association,* August 15, 1959.

Andrew F. Caughey, Jr., M.D., Detroit, is the author of an article entitled "Mumps During Pregnancy," pub-

(Continued on Page 1696)

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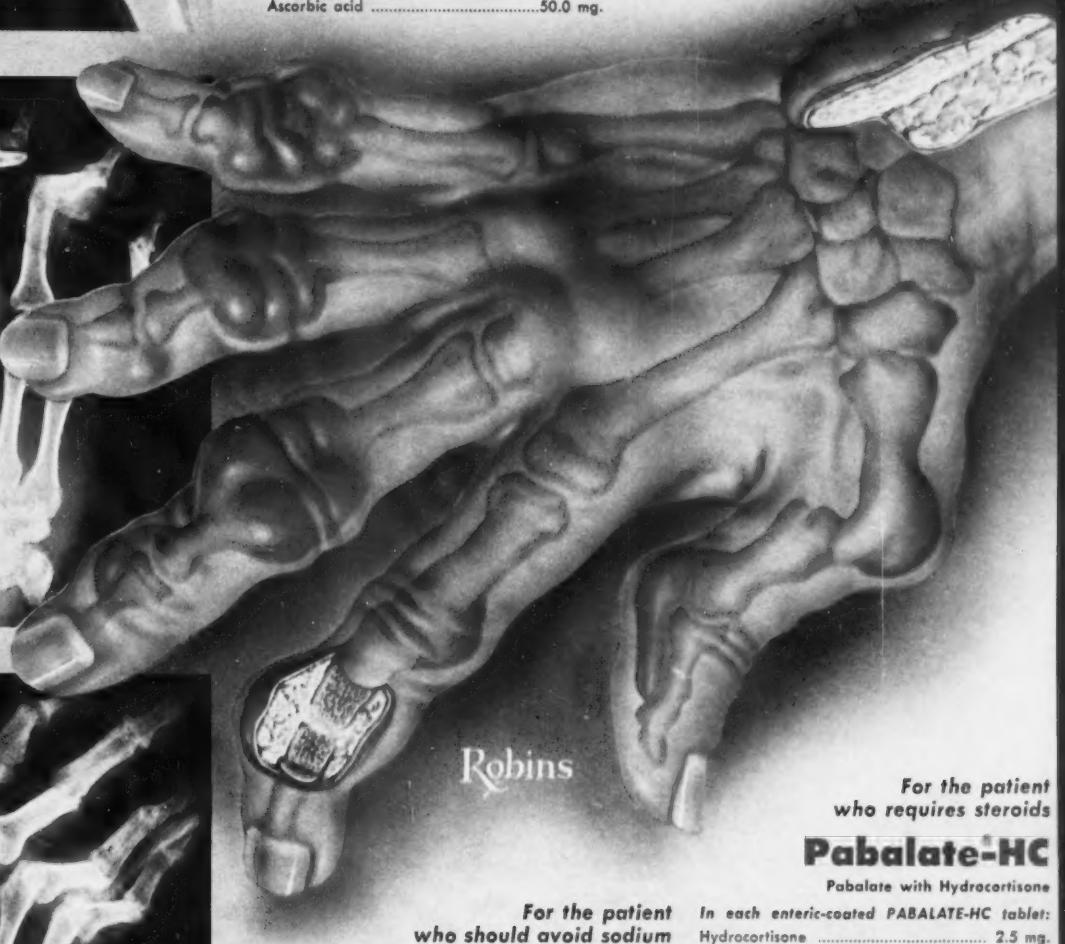

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1. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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1. Bickerman, H. A.: *In* Drugs of Choice 1958-1959, ed. by W. Modell, Mosby, St. Louis, 1958, p. 562.

2. Hayes, E. W., and Jacobs, L. S.: Dis. Chest 30:441, 1956.

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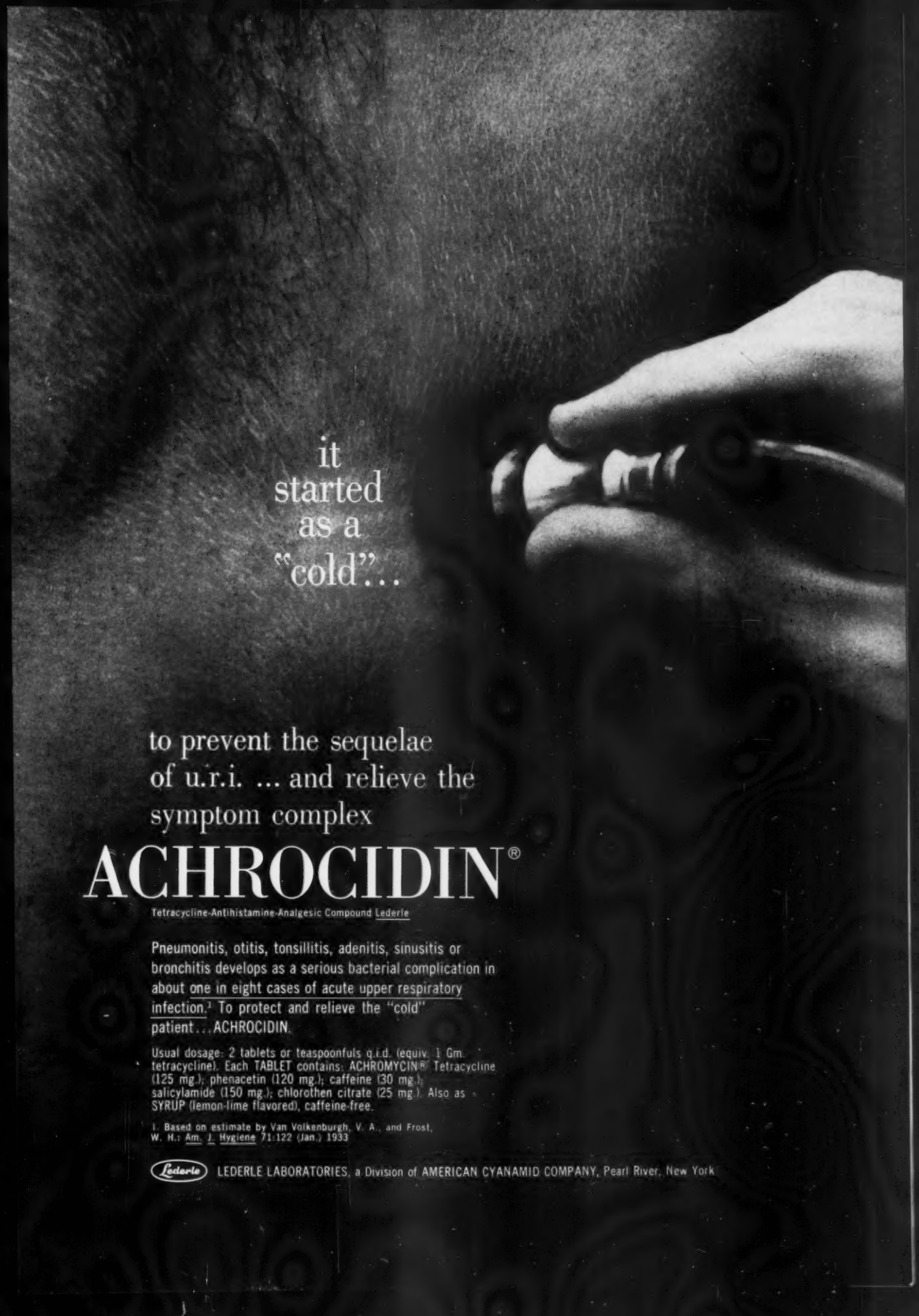

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1. Based on estimate by Van Volkenburgh, V. A., and Frost, W. H.: Am. J. Hygiene 71:122 (Jan.) 1933

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(Continued from Page 1692)

lished in the *American Journal of Obstetrics and Gynecology*, June, 1959.

* * *

Alma J. Murphy, Ph.D., George H. Koepke, M.D., Edwin M. Smith, M.D. and **David G. Dickinson, M.D.**, Ann Arbor, are the authors of an article entitled "Sequence of Action of the Diaphragm and Intercostal Muscles During Respiration. II: Expiration," read at the thirty-sixth annual session of the American Congress of Physical Medicine and Rehabilitation, Philadelphia, August 27, 1958, and published in *Archives of Physical Medicine and Rehabilitation*, August, 1959.

* * *

Ian M. Thompson, M.D., assistant professor of surgery at The University of Michigan Medical Center, has been appointed chairman of the Department of Urology at the University of Missouri Medical School in Columbia, Missouri.

Dr. Thompson assumed his new position in September.

He received his M.D. degree from New York Medical College and practiced in Louisiana and Texas before coming to Michigan in 1957.

His home is at 2104 Copley Avenue, Ann Arbor.

First Newman Fellowship.—Elizabeth W. Edmond of Clio, Michigan, has been named the first student in The University of Michigan Medical School to receive a new tuition scholarship established by Max K. Newman, M.D., of Detroit. The award harks back to Dr. Newman's financial difficulties in the depression years when he had to seek scholarship aid to complete his senior year of medical training. The scholarship pays tuition for a senior who has shown major interest in physical medicine. Miss Edmond was selected by a faculty committee of the medical school.

* * *

Compilation of the history of the Army Medical Service's role in internal medicine during World War II will be directed by a board of fifteen prominent civilian physicians and two military doctors, serving *ex officio*.

Garfield G. Duncan, M.D., internal medicine specialist at Jefferson Medical College, Philadelphia, heads the Advisory Editorial Board recently re-established by the Army Surgeon General's Office.

Under the editorial direction of W. Paul Havens, Jr., M.D., internal medicine specialist on the faculty of the same institution, the board will appraise and revise existing material and include any new material relevant to the history of internal medicine during World War II.

* * *

Pediatric Fellowships.—Grants providing for postgraduate pediatric studies will be awarded again in 1960 by Wyeth Laboratories, it has been announced by Philip

(Continued on Page 1698)

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Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-p-aminophenol)	325 mg.

References: 1. Lhotka, F. M.: Illinois M. J. 112:259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958. 4. Bonica, J. J.: in Drugs of Choice, Mosby, St. Louis, 1958, p. 272. 5. Dascomb, H. E.: in Current Therapy, Saunders, Phila., 1958, p.78. 6. Bickerman, H. A.: in Drugs of Choice, Mosby, St. Louis, 1958, p.547.

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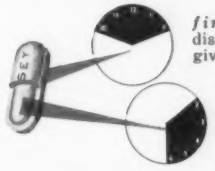

first—the outer layer dissolves within minutes to give 3 to 4 hours of relief

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(Continued from Page 1696)

S. Barba, M.D., past president of the American Academy of Pediatrics and chairman of the fellowship selection committee.

The Philadelphia pharmaceutical manufacturing company will award 20 two-year grants, each carrying an annual stipend of $2,400. Applications for the fellowships must be submitted by November 30, 1959, and the grants will be effective on July 1, 1960.

Candidates for the pediatric fellowships may include interns, physicians who have recently completed their internship, military service or a U. S. Public Health Service Tour, and research fellows. All recipients must be citizens of the United States or Canada.

Additional information and application forms may be obtained from Dr. Barba at the University of Pennsylvania School of Medicine, Philadelphia, Pa.

* * *

New Index Medicus System.—The American Medical Association and the United States Public Health Services' National Library of Medicine in Washington announced jointly today that, beginning Jan. 1, 1960, they will institute a new program for the indexing of medical literature which is estimated at 220,000 articles annually.

The new system, which calls for mechanizing the composition of the index itself, will not only speed up the reference service to physicians, but it will also be less costly.

New Chairman at Wayne.—Richard J. Bing, M.D., one of the outstanding contributors to the field of cardiovascular physiology, has been appointed William H. McGregor Professor of Internal Medicine of Wayne State University. He will act as chairman of the Department of Medicine, effective September 1.

Dr. Bing held a professorship in medicine at Washington University, St. Louis. He was also director of the Washington University Medical Service, Veterans Hospital.

The department chairmanship has been vacant since 1958, when Dr. Gordon Myers resigned so that he could devote full energies to teaching and research. Dr. Myers, chairman for twenty-one years, has headed the University service in Internal Medicine at Harper Hospital.

Dr. Bing is a native of Bavaria. He attended the Universities of Vienna and Berlin, received an M.D. degree from the University of Munich in 1934 and another M.D. degree from University of Bern in 1936.

He was a fellow in the Carlsberg Institute, Copenhagen, from 1936 to 1937. The following year, he was awarded a fellowship in the Rockefeller Institute, New York. From 1938 to 1941, he interned in surgery in Presbyterian Hospital and then became an instructor in physiology at Columbia University College of Physicians and Surgeons.

Dr. Bing became an instructor in medicine in Johns Hopkins Medical School in 1943 and that year he was made a Lt. Colonel in the Army Medical Corps.

(Continued on Page 1700)

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*Editorial: New England J. Med. 260:246 (Jan. 29) 1959

Precautions: Fluid balance should be restored in dehydrated infants or those with oliguria before beginning treatment with Skopyl. **Indications:** Colic (paroxysmal fussing, infantile dyspepsia, irritable crying), infantile vomiting, infantile diarrhea, pyloric spasm. **Available:** 5 cc. dropper bottle. One drop=0.6 mg.; 40 drops=1 cc. **Pharmacia Laboratories, Inc.,** 501 Fifth Avenue, New York 17, N.Y.

(Continued from Page 1698)

His memberships are: American College of Chest Physicians, American College of Cardiology, American College of Physicians, American Federation of Clinical Research, American Medical Association, American Physiological Society, Association of American Physicians, Honorary Member of Harvey Society, Society for Experimental Biology and Medicine, Society for Internal Medicine, Society for Clinical Investigation, Royal Society of Medicine (Affiliate).

Dr. Bing is married to the former Mary A. Whipple. They have four children.

* * *

Medical Civil Defense Conference.—The Council on National Defense, American Medical Association, is sponsoring the tenth annual conference of the County Medical Societies Civil Defense Organization. The conference will be held at the Morrison Hotel, Chicago, Illinois, on November 7-8, 1959.

These yearly conferences are planned to inform and otherwise assist medical and health personnel for their respective roles in disasters. Conferees have the opportunity (1) to participate in workshop sessions concerning medical preparedness to cope with disasters, (2) to discuss and exchange information dealing with emergency medical services, (3) to be informed on the availability of pamphlets and articles devoted to the medical and health aspects of civil defense, and (4) to hear outstanding speakers report on appropriate civil defense and disaster topics.

A highlight of the conference will be a talk by Congressman Melvin Price on the environmental and biological effects of nuclear warfare. Recent hearings conducted by a Joint Congressional Atomic Energy Subcommittee assumed that 224 U. S. "targets" were hit by 263 hydrogen bombs with a force of 1,446 megatons, or the equivalent of a billion, 446 million tons of TNT. The hypothetical attack produced 48,900,000 deaths. In spite of the tremendous number of deaths and staggering number of casualties created by the attack, the one-week hearings ended with the conclusion that the nation could recover from such an attack and that protection measures are feasible and could reduce the casualties considerably. Congressman Price is a member of the Joint AEC Committee.

Those desiring additional information about the conference are requested to contact Mr. Frank W. Barton, Secretary, Council on National Defense, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

* * *

Emergency March of Dimes.—Michigan Chapters of The National Foundation as a result of the epidemic in Wayne County and other areas in Michigan in 1958, owe over $1,000,000 in unpaid hospital and medical bills. *No funds* are available to take care of those who

(Continued on Page 1702)

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LOW CALORIES, HIGH ESSENTIAL NUTRITION

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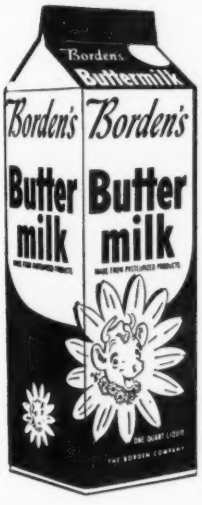
For many years Buttermilk has been prescribed as an aid in promoting healthful bacterial balance in the digestive tract, especially the lower tract. Second good dietary reason!



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Making buttermilk sounds simple, but certainly isn't simple at all! Borden's Buttermilk has a deserved reputation for fresh, sweet wholesome flavor.

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(Continued from Page 1700)

are now in iron lungs or severely crippled and in need of our assistance.

* * *

Hospital Planning Abstract Service.—Starting in October, the American Hospital Association will offer the Hospital Planning Abstract Service to provide a concise summary of what is appearing in journals, in reports or in other publications. The hospital field is alive with change requiring altered patterns of medical practice, of hospital function, of capital financing, of design and construction, of community planning. The twin pressures of expanded medical research and rising costs of hospital operation are causing the whole hospital field to make an almost constant re-evaluation of programs. The Abstract Service will provide material to help in such re-evaluations. It will make sure that "hospital administrators, trustees, physicians, architects, consultants, and directors of hospital associations and state hospital facilities programs can keep informed of what is happening in other communities, or on the national scene."

* * *

Michigan Doctors.—Four Michigan doctors have come up with a sure-fire bedside medical test—blowing out a lighted book match.

This simple huff-and-puff technique can be used to measure the seriousness of blockage in the airway of a patient suffering from pulmonary diseases.

These patients usually present signs of airway obstruction by wheezing and taking a long time to breathe air out of their lungs, the team explains in the *Journal of the American Medical Association.*

But these bedside signs do not give the doctor the necessary information required to determine the patient's respiratory function. It is usually evaluated by two rather complicated tests that require the use of mechanical devices which cannot always be brought to a bedside.

The doctors gave the match test to 126 patients with various pulmonary diseases. Then they gave the two standard tests, correlating the results of the three tests.

The test itself consists of holding a lighted book match six inches from the mouth of the patient. It is important that the patient blow with his mouth wide open, not with pursed lips, the doctor said.

This simple test proved to be a favorable technique when compared to the results of the two standard tests. It should be used as a screening procedure, indicating whether or not more specific tests of pulmonary function should be performed, they conclude.

The doctors are Thomas H. Snider, John P. Stevens, Freeman M. Wilner and Benjamin M. Lewis of Dearborn's Veterans Administration hospital and Wayne State university college of medicine, Detroit.—*Lansing State Journal,* August 4, 1959.

* * *

Medical Records Week.—Gov. G. Mennen Williams proclaimed September 14-18 as Medical Records Week

(Continued on Page 1710)

they deserve

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Vitamin-Mineral Supplement Lederle

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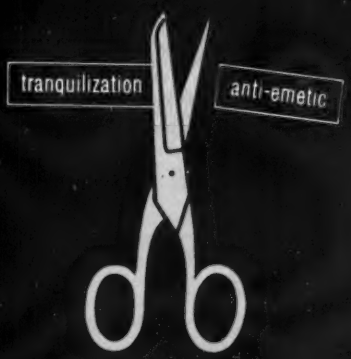
LEDERLE LABORATORIES, a Division of
AMERICAN CYANAMID COMPANY, Pearl River, New York

Lederle

now potent tranquilizer therapy is safer than ever



Virtual freedom of Mellaril from major toxic effects is due to greater specificity of tranquilizing action – divorced from such "diffuse" effects as anti-emetic action.

MELLARIL is virtually free of such toxic effects as

- jaundice
- Parkinsonism
- blood dyscrasia

Thioridazine (MELLARIL) is as effective as the best available phenothiazine but with appreciably less toxic effects than those demonstrated with other phenothiazines. This drug appears to represent a major addition to the safe and effective treatment of a wide range of psychological disturbances seen daily in the clinics or by the general practitioner.

SANDOZ

Mellaril®

THIORIDAZINE HCl

specific, effective tranquilizer • safer at all dosage levels

remarkable lack of side effects

In more than 3,OOO carefully-followed patients, Mellaril has been almost completely free of such major side effects as jaundice, extrapyramidal symptoms, Parkinsonism, blood dyscrasia, dermatitis– **even when given in quantities far in excess of the usual dosage.**

"POVERTY" OF SIDE EFFECTS

"The most striking aspect of thioridazine [Mellaril] therapy is the poverty of side effects.... In its lack of side effects and low toxicity, it is superior to all other tranquilizing drugs tested. For this reason also it is well tolerated by patients, particularly those who are not hospitalized and who frequently discontinue their medication because of dizziness, sleepiness, increased tension or parkinsonism with other drugs."[2]

NEGLIGIBLE SIDE EFFECTS

"Side effects were negligible at all dosage levels: no incidence of parkinsonism or other extrapyramidal symptoms. Minimal sedation, on the whole lower than with other tranquilizing agents. No alteration in liver function, urine or blood. No photosensitivity. Patient acceptability was exceptional: lack of drowsiness, lethargy or 'washed out' feeling, permitted patients to carry on normal everyday activities. Orthostatic hypotension was absent. The initial 'keyed up' tense feeling common to other drugs of this type was absent.... Patients forced to interrupt treatment with other phenothiazine derivatives because of parkinsonism or other extrapyramidal symptoms were able to continue therapy with thioridazine without appearance of parkinsonism."[3]

SINGULARLY FREE OF SIDE EFFECTS

"The extrapyramidal syndrome was not encountered in any of its forms. Dizziness and sleepiness responded to a reduction in dosage. Other side effects did not occur.... It is singularly free from the side effects ordinarily seen with these [phenothiazine] compounds."[4]

ABSENCE OF SIGNIFICANT SIDE EFFECTS

"None of the following toxic effects, so common after administration of the phenothiazines, was present during the period of Thioridazine administration: Parkinsonism or Parkinson-like symptoms, photosensitivity, orthostatic hypotension, bone-marrow depression."[1]

MINIMAL SIDE EFFECTS

"Side effects such as extrapyramidal activity, jaundice and photosensitivity have not been observed in patients treated with Thioridazine [Mellaril]. Extrapyramidal side effects produced by other phenothiazines have disappeared promptly with no deterioration in the behavioral response when these patients have been shifted to Thioridazine."[5]

NO JAUNDICE

"No allergic reactions were observed such as skin eruptions, jaundice or agranulocytosis. Central nervous system toxicity, as manifested by extrapyramidal effects, seizures, and excitement did not occur despite the use of high doses (up to 2000 mg.) of the drug."[6]

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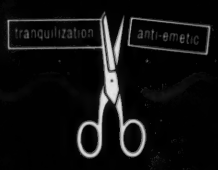
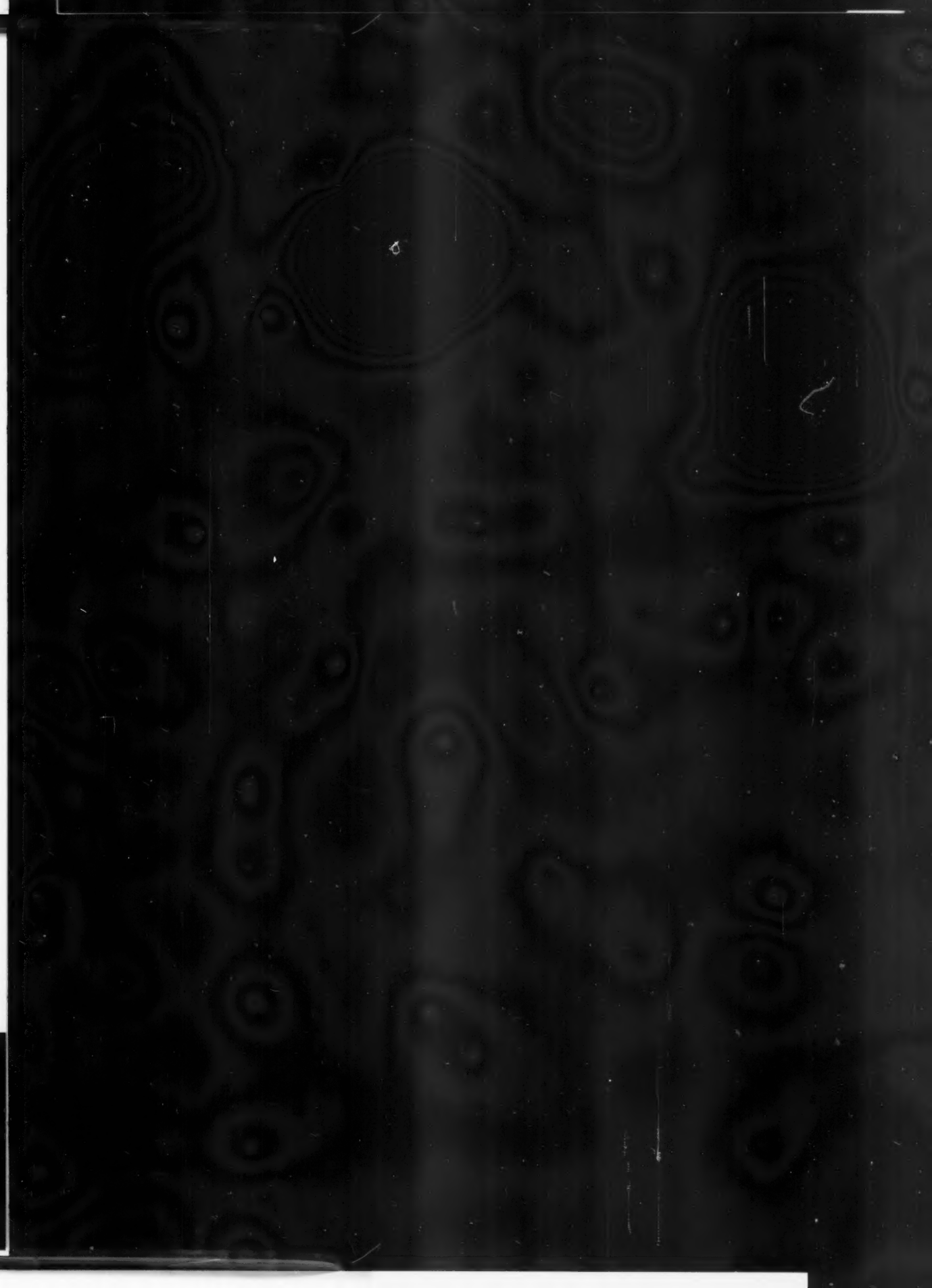
THIORIDAZINE HCl

specific, effective tranquilizer • safer at all dosage levels





excellent clinical response

In office practice and in hospitalized patients, Mellaril has proved highly useful for a wide variety of major and minor emotional disorders (such as anxiety, tension, apprehension, alcoholism, agitated psychoneurosis, agitated psychotic states, etc.).

EXTREMELY SATISFACTORY ". . . produced extremely satisfactory results in the broad therapeutic range represented in this series."[3]

POTENT AGENT ". . . appears to be a potent agent in the symptomatic management of a variety of psychiatric states."[4]

MAJOR ADDITION TO THERAPEUTICS "This drug appears to represent a major addition to the safe and effective treatment of a wide range of psychological disturbances seen daily in the clinics or by the general practitioner."[1]

AN ACTIVE AGENT "Thioridazine is an active therapeutic agent. . . . It is effective in a variety of psychiatric disorders, including schizophrenic reactions. . . . The drug is particularly advantageous for a group of schizophrenic patients who are sometimes made worse by other phenothiazine derivatives or Rauwolfia alkaloids. It should also be suitable for treating patients with psychoneuroses and chronic brain syndrome."[6]

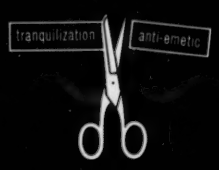
EVEN IN VERY SEVERE CASES "Of the 152 patients treated 25 have been released and they have not suffered a relapse. This proportion is significant if we stop to consider that we are dealing only with acute cases which had been considered hopeless and obviously destined to finish their days in an asylum."[7]

EXCELLENT THERAPEUTIC RESPONSE "Patients with emotional tensions resulting from the stress and strain of life . . . were treated with Mellaril at the dosage level of 10 mg. three times daily. In 94 such patients, 83 obtained an excellent therapeutic response."[8]

Mellaril®

THIORIDAZINE HCl

specific, effective tranquilizer • safer at all dosage levels



"... extremely satisfactory results ..."
in a clinical spectrum ranging from
minor nervous disorders to
severe psychotic disturbances[3]

RESULTS WITH MELLARIL IN 194 PATIENTS[3]

ACUTE PSYCHOTICS	CHRONIC PSYCHOTICS	NEUROTICS
83% satisfactory effect	68% satisfactory effect	57% satisfactory effect
Some cases had complete remission of symptoms. Most were able to return home to useful occupations.	Relief of symptoms in cases permitted easier management and a return to a more or less useful life.	Some cases, complete relief of symptoms. Other cases, partial relief of symptoms.

RESULTS WITH MELLARIL IN PATIENTS PREVIOUSLY TREATED WITH OTHER TRANQUILIZERS[3]

DIAGNOSTIC CATEGORY	IMPROVED %	VERY SATISFACTORY %	SATISFACTORY %	UNSATISFACTORY %
SCHIZOPHRENIA				
Acute	89	61	28	11
Chronic paranoid	84.2	31.6	52.6	15.8
Chronic, other	73.9	21.7	52.2	26.1
Residual	57.1	9.5	47.6	42.9
CHRONIC BRAIN SYNDROME	66.6	33.3	33.3	33.3
CHRONIC PSYCHONEUROSIS	62.5	12.5	50	37.5
CHRONIC PSYCHOSOMATIC DISORDERS	75	25	50	25

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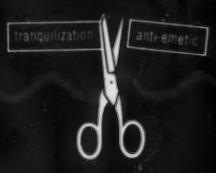
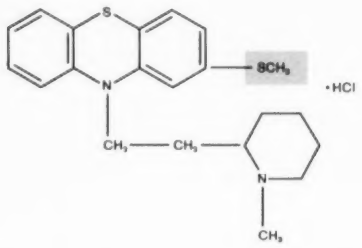
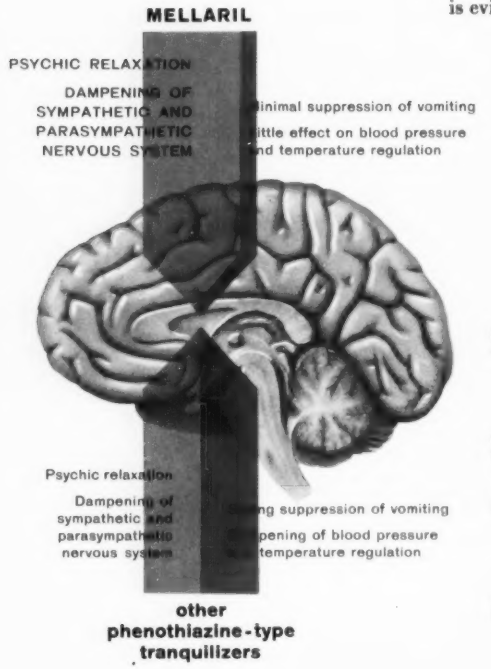


a new advance in tranquilization:
greater specificity of tranquilizing action plus fewer side effects



Of 109 phenothiazines synthesized by Sandoz, Mellaril was selected as the most promising on the basis of extensive evaluation. The presence of a thiomethyl radical ($S\text{-}CH_3$) in the position conventionally occupied by a halogen in other phenothiazines is unique and could be responsible for the relative absence of side effects and greater specificity of psychotherapeutic action. This is shown clinically by:

1 A specificity of action on certain brain sites in contrast to the more generalized or "diffuse" action of other phenothiazines. This is evidenced by a lack of appreciable anti-emetic effect.



2 Less "spill-over" action to other brain areas – hence, absence of undue sedation, drowsiness or autonomic nervous system disturbances.

3 A notable absence of extrapyramidal stimulation.

4 Lack of impairment of patient's normal drive and energy, while achieving psychomotor control in mental and emotional disorders.

5 Virtual freedom from toxic effects – jaundice, photosensitivity, skin eruptions, disturbed body temperature regulation, blood forming disorders have been absent in reports currently available.

These properties add up to a greater margin of safety in general office practice, in ambulatory psychiatric out-patient clinics, and in hospitalized patients.

Mellaril®

THIORIDAZINE HCl

specific, effective tranquilizer + safer at all dosage levels

a guide to administration and dosage

Dosage ranges from 10 mg. three or four times a day in milder situations to 25 mg. three or four times a day for more disturbed patients. In ambulatory psychiatric out-patients, dosages of 50 to 100 mg. three or four times a day have been found adequate. For severely disturbed hospitalized psychotics, dosages of 200 to 300 mg. three times a day may be administered.

Dosage must be individualized according to the condition and degree of response. In all cases, the smallest effective dosage should be determined for each patient.

INDICATION	USUAL STARTING DOSE	TOTAL DAILY DOSAGE RANGE
	ADULTS	
Mental and Emotional Disturbances:		
MILD—where anxiety, apprehension and tension are present	10 mg. t.i.d.	20-60 mg.
MODERATE—where agitation exists in psychoneurosis, alcoholism, intractable pain, senility, etc.	25 mg. t.i.d.	50-200 mg.
SEVERE—in agitated psychotic states as schizophrenia, manic depressive, toxic psychoses, etc.:		
Ambulatory	100 mg. t.i.d.	200-400 mg.
Hospitalized	100 mg. t.i.d.	200-800 mg.
	CHILDREN	
BEHAVIOR PROBLEMS IN CHILDREN	10 mg. t.i.d.	20-40 mg.

PRECAUTIONS: Although possessing a unique structure and a selectivity of action which broadens its therapeutic ratio, the physician should be alert to the possibility of untoward reactions in certain susceptible individuals. In particular, he should watch for potential hemopoietic depression, jaundice or orthostatic hypotension. As with other phenothiazines, Mellaril is contraindicated in severely depressed or comatose states from any cause.

SUPPLIED: MELLARIL Tablets, 10 mg., 25 mg., 100 mg. Bottles of 100.

1. Ostfeld, A. M.: Scientific Exhibit, American Academy of General Practice, San Francisco, April 6-9, 1959. 2. Kinross-Wright, V. J.: Lecture, Clinical Meeting, American Medical Association, Minneapolis, Dec. 4, 1958. 3. Kinross-Wright, V. J.: Scientific Exhibit, Clinical Meeting, American Medical Association, Minneapolis, Dec. 2-5, 1958. 4. Cohen, S.: TP-21, a new phenothiazine, Am. J. Psychiat. *115*:358, Oct. 1958. 5. Glueck, B.: Scientific Exhibit, American Psychiatric Association, Philadelphia, April 27-May 1, 1959. 6. Hollister, L. E., and Macdonald, B. F.: Presented at California Medical Association; Section on Psychiatry, San Francisco, Feb. 25, 1959. 7. Remy, M.: Schweiz. med. Wchnschr. *88*:1221, Nov. 29, 1958. 8. Freed, S. C., in discussion on Thioridazine (Mellaril) in Psychiatric Patients, Hollister, L. E., and Macdonald, B. F., presented at California Medical Association; Section on Psychiatry, San Francisco, Feb. 25, 1959.

- controls neurotic and psychotic patients with anxiety, apprehension, nervous tension
- virtual absence of jaundice, parkinsonism, photosensitivity, dermatitis
- minimal sedation and drowsiness
- does not mask organic conditions such as brain tumors, intestinal obstruction, etc., because of lack of anti-emetic action
- increased specificity of action results in greater safety at all dosage levels

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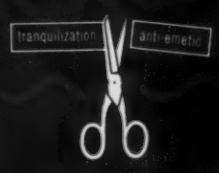

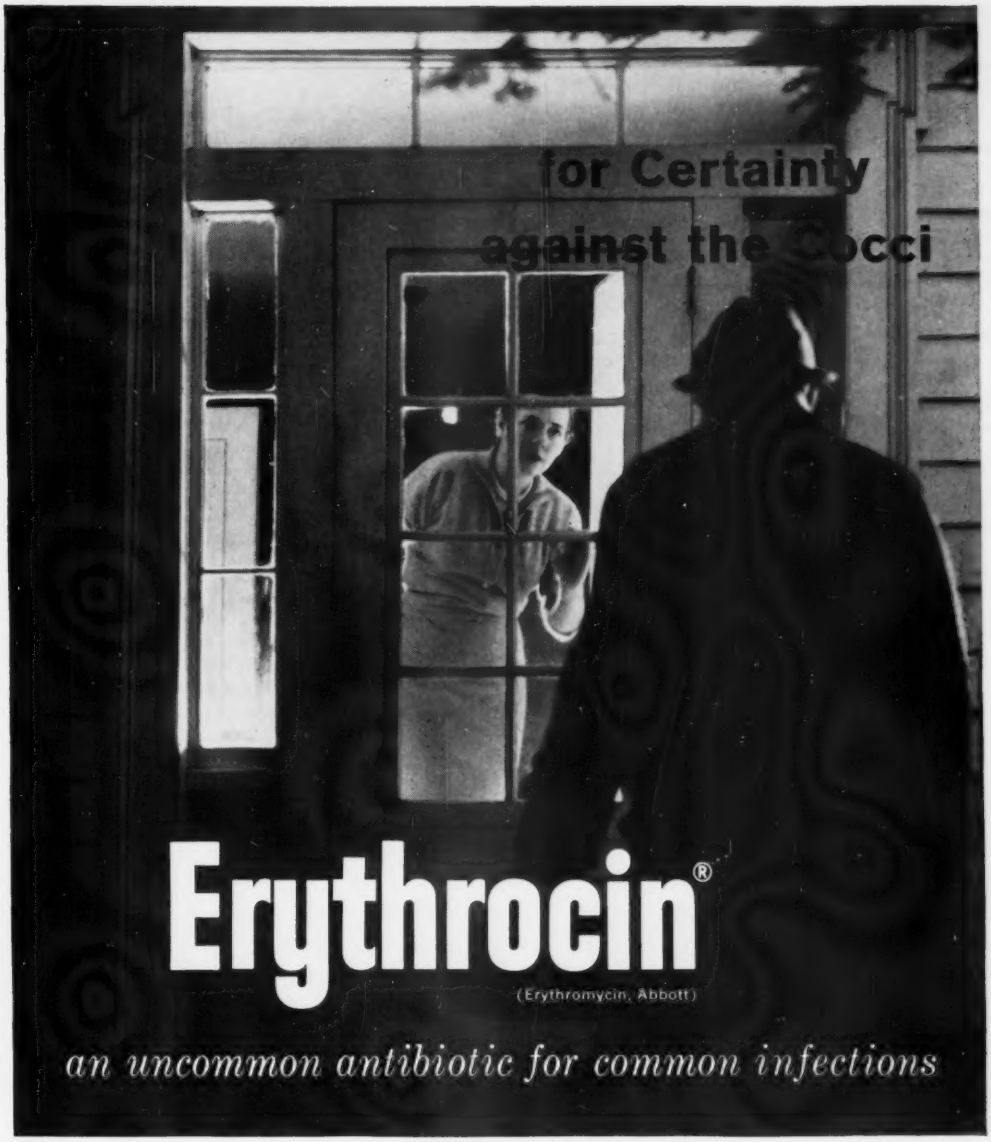

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(Continued from Page 1702)

in Michigan to honor "the important help members of this profession are giving to those in need of medical attention, to the health of our communities and to improvements in hospital care."

Mrs. J. Kathryn Sheetz, chief record libarian at The Uinversity of Michigan Medical Center and president of the state association, received the proclamation in Williams' office. She heads a staff of 109 persons at the U-M with custody of the medical records of more than three-quarters of a million patients.

POSTGRADUATE PROGRAMS

Midwest Clinical Society will hold its twenty-seventh annual meeting in Omaha Civic Auditorium, November 2, 3, 4, 5, 1959. There will be eleven guest speakers of national standing.

* * *

American Board of Obstetrics and Gynecology, Inc.—The next scheduled examination (Part 1), written, and review of case histories for all candidates will be held in various cities of the United States, Canada, and military centers outside the Continental United States, on Friday, January 15, 1960. Candidates must submit case reports to the office of the Secretary within thirty days of being notified of their eligibility to Part 1. Current bulletins may be obtained by writing to: Robert L. Faulkner, M.D., Executive Secretary and Treasurer, 2105 Adelbert Road, Cleveland 6, Ohio.

Executive Type Health Examination.—On Wednesday, September 9, the 1,000th University of Michigan faculty member began his two-week executive-type health examination under a program launched three years ago. Elective, confidential and free of charge, the examinations were established to maintain the health of the faculty and to check any disorders before they reach serious proportions. Invitations for the health appraisal originally went to faculty members above age sixty. Gradually, the age level has been reduced so that present invitees are in the thirty to forty age bracket. Dr. Charles J. Tupper, associate professor of internal medicine, is director of the faculty health project. He reported that 75 per cent of those invited to have the examination have accepted.

* * *

American College of Allergists.—The American College of Allergists Graduate Instructional Course and Annual Congress, February 28 to March 4, 1960, The Americana Hotel, Bal Harbour, Miami Beach, Florida. For information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

* * *

Association of Military Surgeons.—Two thousand American and international physicians, dentists, veterinarians, nurses, and medical specialist delegates will begin registering for the 66th Annual Convention of the Association of Military Surgeons on the afternoon

(Continued on Page 1712)

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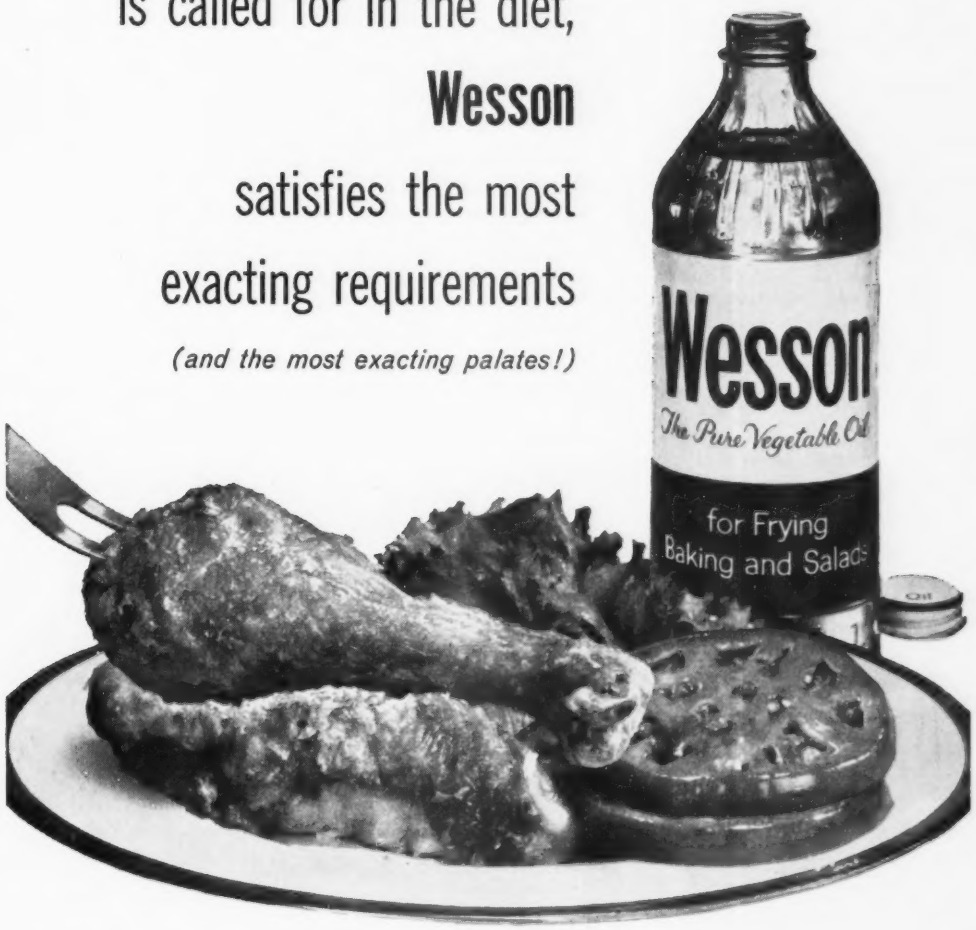
Each capsule contains:	
Vitamin A	5,000 U.S.P. Units
Vitamin D	500 U.S.P. Units
Vitamin B_{12} with AUTRINIC® Intrinsic Factor Concentrate	1/15 U.S.P. Oral Unit
Thiamine Mononitrate (B_1)	5 mg.
Riboflavin (B_2)	5 mg.
Niacinamide	15 mg.
Folic Acid	1 mg.
Pyridoxine HCl (B_6)	0.5 mg.
Ca Pantothenate	5 mg.
Choline Bitartrate	50 mg.
Inositol	50 mg.
Ascorbic Acid (C)	50 mg.
Vitamin E (as tocopheryl acetates)	10 I.U.
l-Lysine Monohydrochloride	25 mg.
Rutin	25 mg.
Ferrous Fumarate	30 mg.
Iron (as Fumarate)	10 mg.
Iodine (as KI)	0.1 mg.
Calcium (as $CaHPO_4$)	157 mg.
Phosphorus (as $CaHPO_4$)	122 mg.
Boron (as $Na_2B_4O_7.10H_2O$)	0.1 mg.
Copper (as CuO)	1 mg.
Fluorine (as CaF_2)	0.1 mg.
Manganese (as MnO_2)	1 mg.
Magnesium (as MgO)	1 mg.
Potassium (as K_2SO_4)	5 mg.
Zinc (as ZnO)	0.5 mg.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Where a poly-unsaturated oil is called for in the diet, **Wesson** satisfies the most exacting requirements

(and the most exacting palates!)



More acceptable to patients. Wesson contributes greatly to the palatability of food and, thus, can be important in encouraging patients to maintain prescribed restricted diets. By the criteria of odor, flavor (blandness) and lightness of color, housewives prefer Wesson.*

Uniformity you can depend on. Wesson has a poly-unsaturated content better than 50%. Only the lightest cottonseed oils of highest iodine number are selected for Wesson, and no significant variations are permitted in the 22 exacting specifications required before bottling.

Economy. Wesson is consistently priced lower than the next largest seller, a not unimportant consideration, where poly-unsaturated oil is called for.

Wesson's Active Ingredients:	
Linoleic acid glycerides	50% to 55%
Phytosterol (predominantly beta sitosterol)	0.4% to 0.7%
Total tocopherols	0.09% to 0.12%
Never hydrogenated—completely salt free	

* Reconfirmed by recent tests against the next leading brand with brand identifications removed, among a national probability sample.

(Continued from Page 1710)

of November 8. The theme of the three-day convention is "Practice of Military Medicine."

* * *

The Academy of Medicine of Cleveland and Cuyahoga County Medical Society will present a two-day postgraduate seminar on "Recent Advances in Diagnosis and Therapy of Malignant Disease," Wednesday and Thursday, November 18, 19, 1959. Inquiries should be addressed to the Academy of Medicine of Cleveland, 2009 Adelbert Road, Cleveland 6, Ohio. Telephone: CEdar 1-3500.

* * *

Radiation Control.—The University of Michigan's School of Public Health has been approved by the Atomic Energy Commission to teach radiation control and health physics to students holding A.E.C. scholarships. Clarence J. Velz, chairman of the Department of Environmental Health, said the approval recognizes that the university has one of the most intensive radiological health programs in the United States. Two years of study will be required for a student to win a master of public health degree in this specialty. At present there are fifteen students enrolled, and six of them are working toward doctoral degrees in the field. Only students employed in state regulatory agencies may enroll in the radiation control program, although a comparable program in health physics is open to any student with proper academic qualifications.

* * *

Aid for Hay Fever Victims.—University of Michigan meteorologists have developed an instrument for measuring the amount of hay fever pollen in the air which far surpasses in accuracy the gravity-slide method commonly in use. James B. Harrington, research associate, said the roto-bar sampler, which rotates at 3,600 R.P.M., traps pollen from the air on a piece of metal one and one-quarter inches long and about one millimeter (or approximately three one-hundredths of an inch) thick. The pollen is impinged or trapped on the edge which has been made sticky.

The gravity slide sampler is sensitive to changes in both wind speed and direction and does not give an accurate representation of the pollen concentration in the air, he indicated. With the roto-bar sampler, however, the rotating speed is high enough to be unaffected by wind changes. The device was developed as one of the advances made during a five-year study of all aspects of hay fever being conducted by the University of Michigan for the National Institutes of Health. Now entering its final year, the study also involves medical doctors, botanists, and public health statisticians.

It is estimated that some 7,500,000 Americans each year are hay fever victims.

(Continued on Page 1714)

Tested... and proved...

ORAL therapy in diaper rash!

Convenient... simply open a capsule and add the contents to the baby's daily formula, or to fruit juice or water. No lotions... no rinses... no ointments... just oral therapy.

Send for samples and literature.

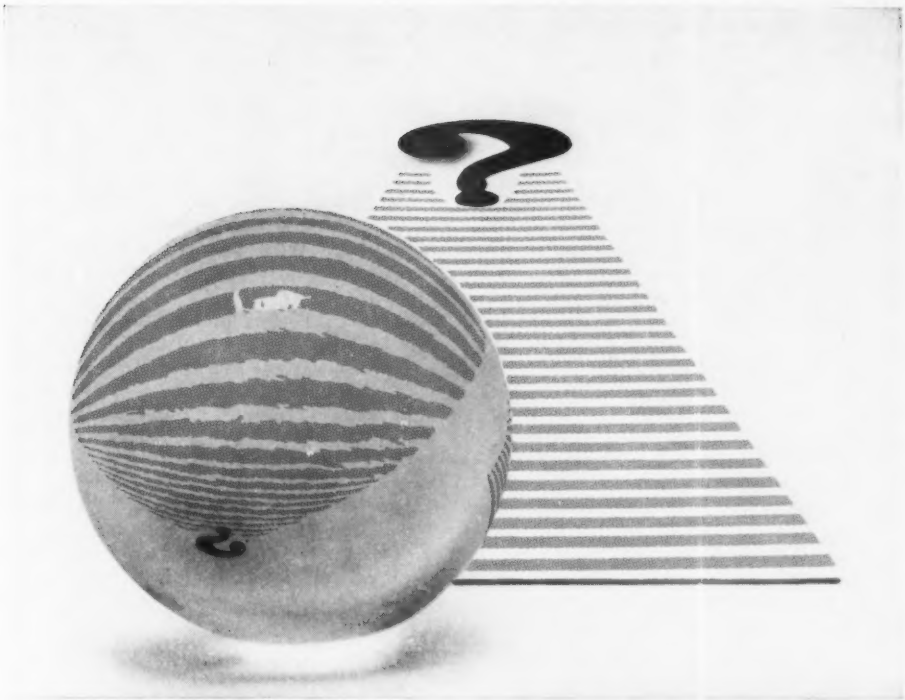
S. F. DURST & CO., INC.
Philadelphia 20, Pa.

Effective therapy! Thousands of pediatricians and general practitioners prescribe Pedameth for ammonia dermatitis—and they continue to prescribe it. Clinical tests have proved its effectiveness. Pedameth is safe because it contains only dl-methionine (0.2 Gm.) one of the essential amino acids. When Pedameth is administered, the pH of the urine is lowered and an as-yet-unknown antibacterial agent appears in the urine. Pedameth works... it's the safe, effective, convenient answer to ammoniacal diaper rash.

Prescribe

PEDAMETH®

(dl-methionine DURST)



what lurks beyond the broad spectrum?

"Broad spectrum" has evolved into an especially apt term to describe a growing number of "specialized" antibiotics. These provide the best means of destroying pathogenic bacteria which range all the way from large protozoa through gram-negative and gram-positive bacteria to certain viruses at the far end of the spectrum.

But beyond the spectrum lurk pathogenic fungi. Aggressive infections often require intensive broad spectrum antibiotic attack. It becomes more apparent every day that fungal superinfections may occur during or following a course of such therapy.[1,2] Long term debilitating disease, diabetes, pregnancy, corticosteroid therapy, and other causes may predispose to such fungal infections[1,3,4] as iatrogenic moniliasis. These facts complicate the administration of antibiotics.

Mysteclin-V controls both – infection and superinfection. Mysteclin-V makes a telling assault on bacterial infections and, in addition, prevents the potentially dangerous monilial overgrowth.[2,5-8] Mysteclin-V is a combination of the phosphate complex of tetracycline – for reliable control of most infections encountered in daily practice – and Mycostatin, the first safe antifungal antibiotic.

Case history after case history marked "recovered" provides clinical evidence of the special merit of this advance in specially designed antibiotics. When you prescribe Mysteclin-V, you provide "broad therapy" with extra protection that extends beyond the spectrum of ordinary antibiotics.

'MYSTECLIN'®, 'SUMYCIN'®, AND 'MYCOSTATIN'® ARE SQUIBB TRADEMARKS

Supplied:	Tetracycline Phosphate Complex equiv. Tetracycline HCl (mg.)	Mycostatin units
Mysteclin-V Capsules (per capsule)	250	250,000
Mysteclin-V Half-Strength Capsules (per capsule)	125	125,000
Mysteclin-V Suspension (per 5 cc.)	125	125,000
Mysteclin-V Pediatric Drops (per cc. – 20 drops)	100	100,000

References: 1. Dowling, H. F.: Postgrad. Med. 23:504 (June) 1958. 2. Gimble, A. I.; Shea, J. G., and Katz, S.: Antibiotics Annual 1955–1956, New York, Medical Encyclopedia Inc., 1956, p. 676. 3. Long, P. H., in Kneeland, Y., Jr., and Wortis, S. B.: Bull. New York Acad. Med. 33:852 (Aug.) 1957. 4. Rein, C. R.; Lewis, L. A., and Dick, L. A.: Antibiotic Med. & Clin. Ther. 4:771 (Dec.) 1957. 5. Stone, M. L., and Mersheimer, W. L.: Antibiotics Annual 1955–1956, New York, Medical Encyclopedia Inc., 1956, p. 863. 6. Campbell, E. A.; Frigot, A., and Dorsey, G. M.: Antibiotic Med. & Clin. Ther. 4:817 (Dec.) 1957. 7. Chamberlain, C.; Burros, H. M., and Borromeo, V.: Antibiotic Med. & Clin. Ther. 5:531 (Aug.) 1958. 8. From, F., and Alli, J. H.: Antibiotic Med. & Clin. Ther. 5:639 (Nov.) 1958.

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SQUIBB

Squibb Quality – the Priceless Ingredient

(Continued from Page 1712)

Congenital Heart Disease will be the theme for the Second International Symposium on Changing Concepts in Medicine at the Bellevue-Stratford Hotel, Philadelphia, Pennsylvania, April 28-30, 1960.

* * *

Harold A. Furlong, M.D., Pontiac, was featured by the *Detroit Times*, on August 13, as one of 11 Michigan men still living who won the Congressional Medal of Honor. Lieutenant Furlong, on November 1, 1918, took command of an infantry company when his commander and several others were killed by machine-gun fire in an attack at Boise de Bantheville, France. He circled the German position and attacked from the rear, cleaned up the pocket, bagging twenty German soldiers.

Modestly, Doctor Furlong stated, "I was lucky not to be killed and have been living 40 years on borrowed time. I just did the job I thought I was supposed to do. Probably many men do braver things and go unnoticed."

Doctor Furlong did not indicate that he also was awarded the Croix de Guerre by France!

Doctor Furlong has been a very active member of the Oakland County and Michigan State Medical Societies since he began medical practice in Pontiac in 1929.

Earl E. Weston, M.D., engaged in industrial medicine for 22 years and a member of Highland Park General Hospital staff, has been appointed medical director of Vickers Incorporated, Division of Sperry Rand Corporation. He will help Vickers with medical-health programs and safety projects and will co-ordinate all medical-industrial hygiene activities among the Vickers plants. A graduate of the University of Michigan Medical School, he is a past president of the Michigan Industrial Medical Association and the Detroit Industrial Physicians Club.

* * *

The American Fracture Association will hold its 20th annual meeting at the Roosevelt Hotel, New Orleans, Louisiana, Nov. 1-4. Co-operating in this postgraduate course is the American Academy of General Practice.

* * *

Radio Communications.—On June 6, 1959, the American Medical Association filed a petition with the Federal Communications Commission requesting the Commission to make six, 30-kc channels in the band 161.645-161.825-mc available to broadcast stations for remote pick-up purposes on an exclusive basis. If this request is granted, greater utilization may be made of FM noncommercial broadcast station facilities for providing advanced instruction to members of the medical profession.

Previously, on October 8, 1959, the AMA filed a petition with the FCC requesting the Commission to make certain radio channels available to physicians. No action

(Continued on Page 1716)

Sanctorius on his steelyard chair in the act of weighing himself for a metabolism experiment

in obesity
bring the . . . MOOD UP
. . . WEIGHT DOWN
keep BLOOD PRESSURE LEVEL
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Vitamin B-1	1.6 mg.	Sodium Molybdate	0.45 mg.
Vitamin B-2	2.5 mg.	Zinc Sulfate	3.9 mg.
Niacinamide	15.5 mg.	Potassium Iodide	0.13 mg.

REFER TO PDR
PAGE 826

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running noses

and open stuffed noses orally

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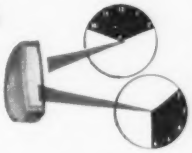

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then— the core disintegrates to give 3 to 4 *more* hours of relief

Each TRIAMINIC Tablet provides:
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One-half of this formula is in the outer layer, the other half is in the core.

Dosage: One tablet in the morning, mid-afternoon and at bedtime.

References: 1. Lhotka, F. M.: Illinois M. J. 112: 259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958.

TRIAMINIC JUVELETS: Each timed-release Juvelet is equivalent in formula and dosage to one-half of a TRIAMINIC tablet, for the adult or child who requires only half strength dosage.

TRIAMINIC SYRUP is recommended for adults and children who prefer liquid medication. Each 5 ml. tsp. is equivalent to ¼ of a Triaminic Tablet. *Adults:* 2 tsp. 3-4 times a day; *children 6-12:* 1 tsp. 3-4 times a day; *children under 6:* in proportion.

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(Continued from Page 1714)

has been taken by the Commission on this petition as yet. *The Citation,* Vol. 2, No. 4.

* * *

M.D. Locations—Through August 31, 1959.—*Placed by Michigan Health Council:* Jim VerLee, M.D., Grand Rapids; William G. Bunto, M.D., Lansing; Donald E. Christensen, M.D., Gaylord.

Assisted by Michigan Health Council: Robert E. Willis, M.D., Flint; Thomas Baker, M.D., Freeland; Ophelia Baker, M.D., Freeland; Glenn O. Lease, M.D., Ann Arbor; Herbert E. Humphrey, M.D., Marshall.

* * *

Medical Television Shows produced by Michigan Health Council.—*August 2*—"Alcoholics Anonymous"—(Film—"Behind the Screen"); *August 9*—"The Greatest Good"—(Film—"The Greatest Good"); *August 16*—"Radiology"—(Film—"First a Physician"); *August 23*—"Medical Care"—(Film—"Operation Herbert"); *August 30*—"Life of a Doctor"—(Film—"Night Call").

* * *

Epilepsy Course at Wayne.—A. Earl Walker, M.D., Professor of Neurosurgery and Chairman of the Department of Neurological Surgery at Johns Hopkins Hospital, has accepted an invitation to present the Annual Alpha Omega Alpha Lecture at Wayne State University College of Medicine on Friday, November 20, 1959, from 11:00 to 12:00 noon in the Wayne County Medical Society Auditorium. The subject he has chosen is titled "A Modern View of the Falling Sickness." In this lecture he will present some current experimental work on the pathogenesis and mechanisms of focal epilepsy.

In addition to presenting this formal lecture, Dr. Walker will present, on Thursday evening to the members of the Alpha Omega Alpha Honorary Medical Society, a talk titled "Cranial Surgery or the Devine Mark." This talk will be a discussion of some of the practices of pre-Incan Peruvians who carried out trephining of the skull as part of a religious ceremony.

Dr. Walker will also act as Professor of Neurosurgery, pro tempore, for the dates of Thursday, November 19, Friday, November 20 and Saturday, November 21, at which time he will conduct rounds on clinical problems on the Neurosurgical and Neurological Service for the benefit of residents, interns, students and attending staff.

* * *

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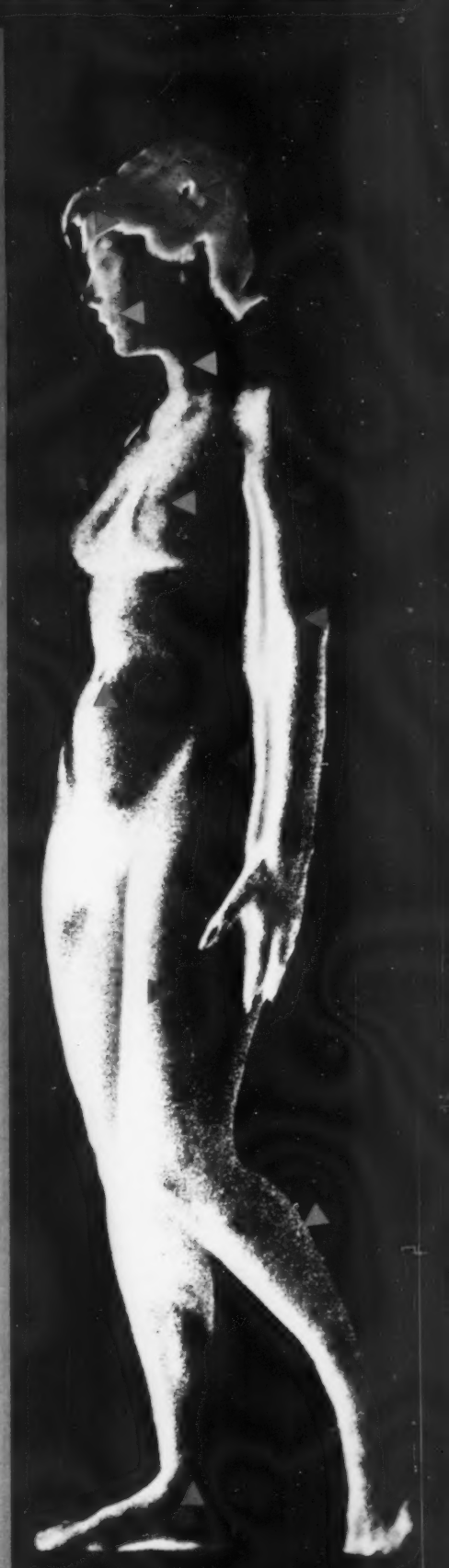

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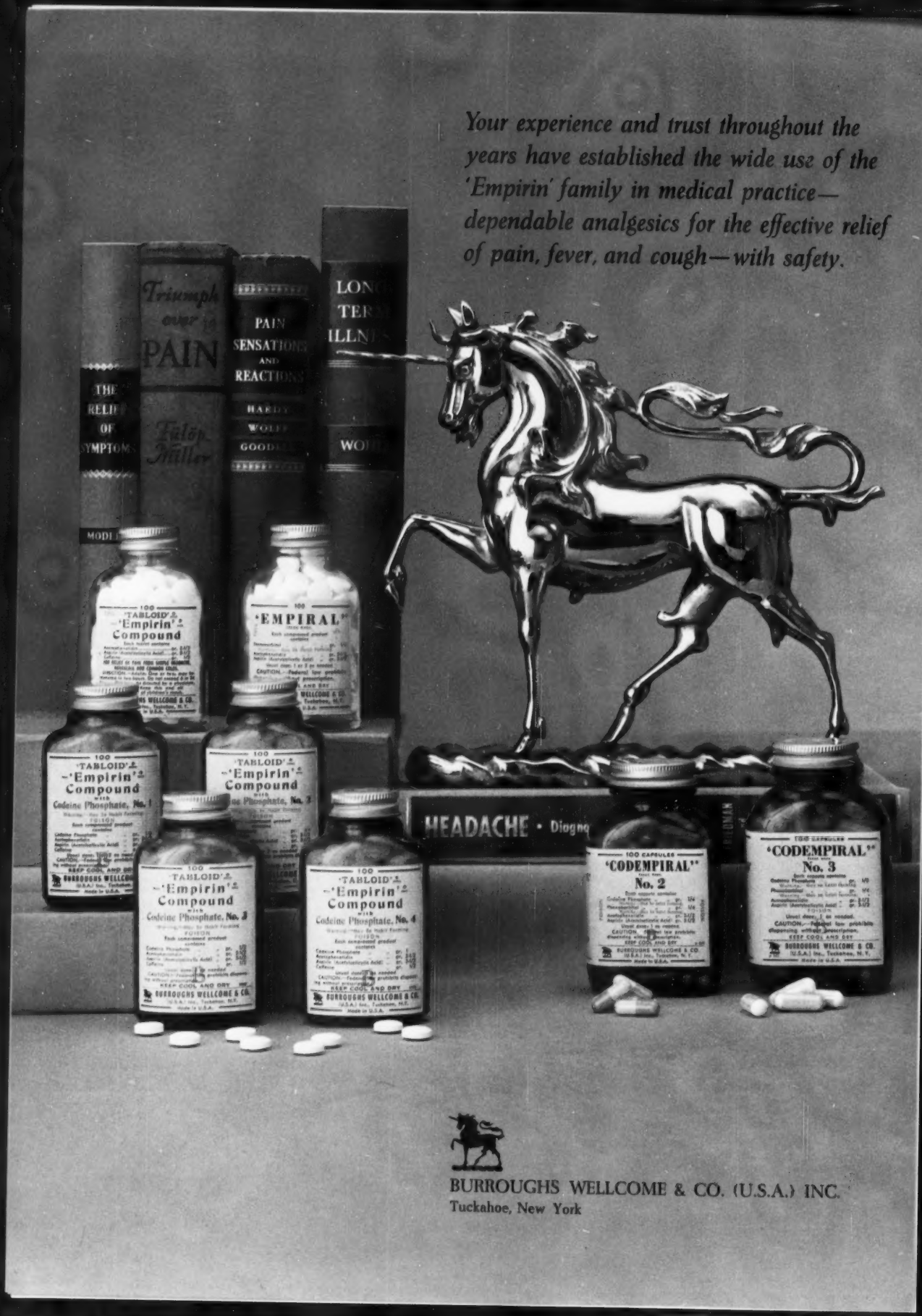
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TENTH ANNIVERSARY CONFERENCE

You are invited to join the Detroit Memorial Hospital in celebrating its Tenth Anniversary Conference, "Cancer of the Breast," Wednesday, December 2, 1959, at the David Whitney House, Wayne County Medical Society, 1010 Antietam, Detroit, Michigan. The program is as follows:

Noon

12:00 Luncheon—David Whitney House
Presiding—HAROLD JARVIS, M.D., Chief of Staff
Senior Attending, Obstetrics & Gynecology,
Detroit Memorial Hospital

P.M.

1:30 "Incidence, Pathogenesis and Pathologic Aspects of Breast Cancer"
C. F. GESCHICKTER, M.D.
Professor and chairman, Department of Pathology,
Georgetown University Medical School, Washington, D. C.
Chief of Department of Pathology,
District General Hospital, Washington, D. C.

2:20 "Surgical Management of Breast Cancer"
E. W. LEWISON, M.D.
Assistant Professor of Surgery,
Johns Hopkins University School of Medicine, Baltimore
Chief of Breast Clinic, Division of Tumor Clinic,
Johns Hopkins Hospital, Baltimore, Maryland

3:05 Recess

3:20 "Hormonal and Other Medical Aspects in the Management of Breast Cancer"
SAMUEL G. TAYLOR III, M.D.
Associate Professor of Medicine,
University of Illinois, Chicago
Director of Medical Oncology,
Presbyterian Hospital, Chicago, Illinois

4:10 "Radiotherapy in the Management of Breast Cancer"
L. H. GARLAND, M.D.
Clinical Professor in Radiology,
Stanford University Medical School, San Francisco
Consultant Radiologist,
Letterman Army Hospital, U. S. Veterans Administration

5:30 Cocktails and Dinner—David Whitney House

7:30 Panel Discussion and Question and Answer Period—
"Management of Breast Cancer"
C. F. GESCHICKTER, M.D., E. W. LEWISON, M.D., SAMUEL TAYLOR, M.D., and L. H. GARLAND, M.D.
Presiding—JAMES E. LOFSTROM, M.D.
Professor and Chairman of Radiology,
Wayne State University College of Medicine
Director of Department of Radiology,
Detroit Memorial Hospital

Luncheon and Cocktails compliments of the staff of Detroit Memorial Hospital. Dinner by subscription because of limited facilities. Charge: $5.00. Registration for luncheon and dinner must be made before November 15, 1959. Those interested should address all correspondence to: Jack Rom, M.D., Chairman, Program Committee, Detroit Memorial Hospital, 1420 St. Antoine St., Detroit 26, Michigan.

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Communications

DEAR DOCTOR:

Your letter asking advice with respect to the handling of Tissue Committee records has been referred to me for attention.

I have long believed that there are definite risks involved in keeping records of Tissue and Medical Audit Committees and, unfortunately, I can suggest no certain and complete safeguards. Such committees perform recognized and extremely valuable functions and I do not believe that they can be done away with or that no records of such committees be kept merely because they might, in some instances, be used to aid in the prosecution of malpractice actions. I do believe, however, that all reasonable precautions should be taken to make such records as impersonal and as confidential as possible.

In recent years, our courts have liberalized the so-called "discovery" practice to such an extent that it is much easier for litigants or prospective litigants to obtain access to records than was formerly the case. This means, of course, that such records must be compiled much more carefully and impersonally and that the consequences must be kept in mind at all times.

Such records should always be kept separately from the patient's record and evaluations of the patient's care should never be permitted to appear on the patient's record. The names of doctors preferably should not be used in staff committee minutes and records and where necessary that they be identified, they should preferably be coded. Care should be taken that gratuitous comments beyond those necessary to proper evaluation should never appear in the records.

While I realize that such records must be kept in order to comply with requirements of the Joint Commission of Accreditation, I do not believe that there is any requirement that they be kept for any particular length of time. I therefore recommend that such records be not permitted to accumulate beyond the point where they have served their purpose.

In conjunction with the Legislative Committee of MSMS, I am now studying the pros and cons of legislation designed to safeguard the confidential nature of records of this kind so as to make it impossible to reach them for use in litigation. Personally, I am inclined to believe that this is the best ultimate answer, but until definite legislation is worked out and proposed, I can suggest only the general type of safeguard above outlined.

Very truly yours,
LESTER P. DODD
Legal Counsel, MSMS

Detroit, Michigan
August 7, 1959

HEW Secretary Arthur S. Fleming in a statement at the opening of hearings on the Forand Bill to establish in the Social Security framework a compulsory health insurance for the aged said: "Instead of abandoning voluntary hospital insurance for the aged in favor of compulsory insurance, every possible effort should be made to determine whether or not a plan can be developed that will strengthen the voluntary approach."

THE DOCTOR'S LIBRARY

Acknowledgments of all books received will be made in this column, and this will be deemed by us as full compensation to those sending them. A selection will be made for review, as expedient.

PATIENT CARE AND SPECIAL PROCEDURES IN X-RAY TECHNOLOGY. By Carol Hocking Vennes, R.N., B.S., formerly Surgical Supervisor and Clinical Instructor, University of Minnesota Hospitals, Minneapolis, Minnesota, and John C. Watson, R.T., Director of Courses in X-Ray Technology, University of Minnesota Hospitals, Minneapolis, Minnesota. Illustrated. St. Louis: The C. V. Mosby Company, 1959.

The title may not carry great visual impact, but believe me, this book demands a place in both x-ray and nursing departments of all up-to-date hospitals.

Books that teach departmental cooperation in hospitals are rare and are not easy to write or formulate into classified chapters. These authors of nursing and radiographic technique fields give evidence not only of great experience but also of adequate thought and care in organizing the subject material.

Common hazards in handling both drugs and irradiation are reviewed and brought up to date. A return to the teachings of cleanliness and asepsis has a very timely touch for all technicians and nurses.

In one chapter, we are sharply reminded that the word "hospital" is derived from a French word meaning host or hostess. "As such, it should imply the graciousness of a considerate host."

Well-written chapters on specialization techniques show that dealings with the infant, the aged and the emotionally disturbed have become essential components to modern x-ray departments.

Administrators who have come to understand the importance of communications and paper work, will see in this book the advantages of cooperation among hospital departments. It is further pointed out by the authors how the consideration of the individual as a whole aids in the prevention of patient stress.

Many of the teachings in this book have been hard earned and are valuable. The printing, writing style and cover design add to the pleasure of this review.

R.C.H.

METALS AND ENGINEERING IN BONE AND JOINT SURGERY. By Charles Orville Bechtol, M.D., Professor of Orthopedic Surgery and Chairman of Orthopedic Division, University of California, Los Angeles; Chairman of Subcommittee on Testing, Prosthetics Research Board, National Research Council; Albert Barnett Ferguson, Jr., M.D., Silver Professor of Orthopedic Surgery, and Chairman of Orthopedic Department, University of Pittsburgh; Children's and Presbyterian Hospital, Pittsburgh; Consultant, Orthopedic Surgery, U. S. Veteran's Hospital, Oakland, Pittsburgh; St. Margaret's Hospital, Pittsburgh; Green County Hospital, Waynesburg; Patrick Gowans Laing, M.D., B.S., F.R.C.S., Assistant Professor of Orthopedic Surgery, University of Pittsburgh;

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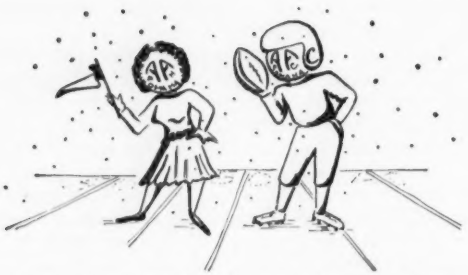

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Chief of Orthopedic Service, U. S. Veteran's Hospital, Oakland, Pittsburgh. Baltimore: The Williams and Wilkins Company, 1959. Price, $8.00. (Exclusive U. S. Agents)

This hard-bound monograph, which so strikingly illustrates the application of engineering and metallurgical principles to the use of metals in a living animal, will probably be an eye-opener to many men doing orthopedic surgery. It contains nine excellent chapters, ranging from the historical use of metals to their present day place in orthopedic surgery.

The application of various metals and alloys, the pros and cons of different types of internal fixation are presented and discussed from the practical orthopedic and the engineering points of view.

The photographs and illustrations are of outstanding quality. There is an engineering-orthopedic glossary and a very adequate subject index.

This book is highly recommended for anyone who is doing or who is interested in orthopedic surgery.

J.M.H.

THE CARE OF MINOR HAND INJURIES. By Adrian E. Flatt, M.A., M.D., F.R.C.S., Assistant Professor of Orthopedic Surgery, State University of Iowa, Iowa City, Iowa. Foreword by Carroll B. Larson, Md. Illustrated. St. Louis: The C. V. Mosby Company, 1959.

This book is an exceedingly helpful reference for the neophyte in the emergency room or the occasional practitioner of trauma. It is so indexed and organized that it can be dipped into for ready reference to a given situa-

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Stephen C. Mason, M.D.

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tion. It is primarily helpful in being rather dogmatic than presenting several alternatives to only confuse one seeking merely a safe and practical solution to a given injury.

Lest the title prove misleading, be it remembered there is no such thing as "minor" surgery, only "minor" surgeons.

SURGERY OF THE FOOT. By Henri L. DuVries, M.D., Clinical Instructor in Surgery, Chicago Medical School; Attending Surgeon, Columbus Hospital, Mother Cabrini Hospital and Frank Cuneo Hospital; Chairman, Department of Surgery, Illinois College of Chiropody and Foot Surgery, Chicago. Foreword by Karl A. Meyer, M.D. Introduction by Edward L. Compere, M.D. With 403 figures. St. Louis: The C. V. Mosby Co., 1959. Price, $12.50.

This book is a welcome, much sought-for addition to the library of any physician. Who has suffered from or who has treated sore feet. It is unique in that it is written by a man who was a chiropodist before he became a doctor of medicine, and he has continued to specialize in the foot and its shortcomings for thirty years.

The book is a hard-bound, glossy paper edition containing excellent photographs, diagrams nad drawings. There are eighteen chapters, all well written and well organized.

The opening chapter on anatomy contains almost self-explanatory sketches which visualize the functional anatomy very clearly. The chapters on examination and operative principles, although short, are adequate and well illustrated.

The chapters on infections, tumors, and trauma take up classification and explain diagnostic problems in terms of structure and pathological physiology. Modern methods of treatment are discussed.

Other chapters deal with specific problems, such as skin disorders, toenails diseases, diseases of facia, synovia, tendon, sesamoids, the arthritides, necroses, atrophies, fractures, anomalies and deformities. These are discussed from the standpoint of etiology, diagnosis and treatment.

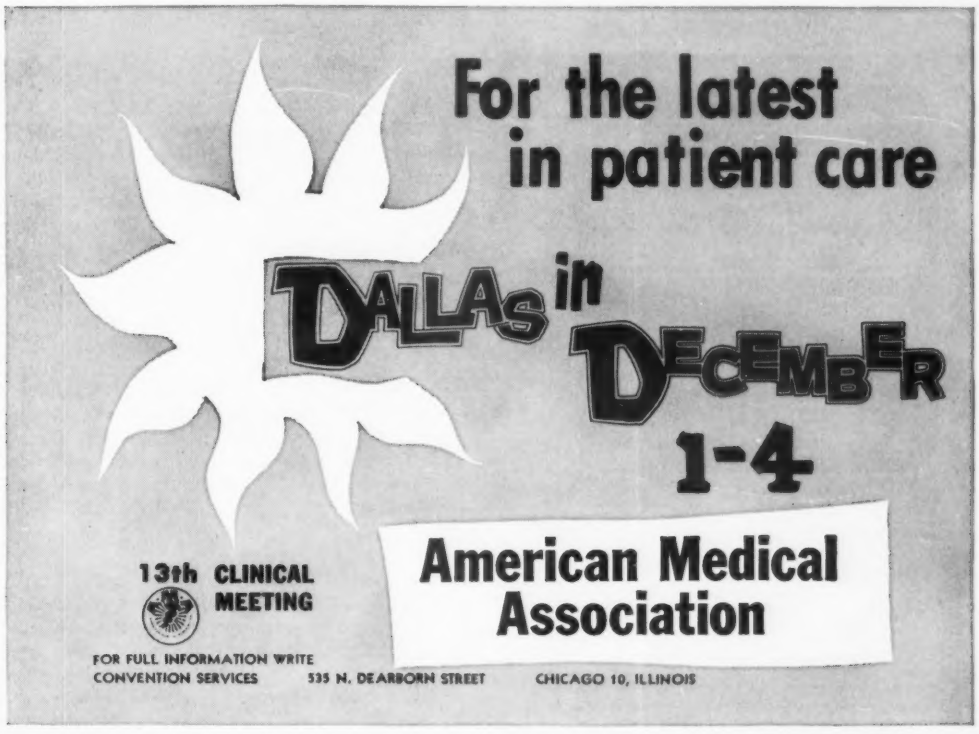
At the end of each chapter there is a complete, up-to-date bibliography with both an author and a subject index.

This book is a classic and should be in the library of any physician who has a patient remove his shoes for an examination.

J.M.H.

CLINICAL PROBLEMS IN CHEST DISEASE. Hemoptysis, Pneumonitis, The Mediastinal Mass, Pleural Effusion, With Special Reports on Pulmonary Cytology and the Management of Chest Trauma. Upjohn Grand Rounds No. 8. Washington University—Barnes Hospital Medical Center in St. Louis. Telecast.

The report is an illustrated transcript of the discussion. The complete 90-minute program is available on film to members of the medical and allied professions upon request to the Upjohn Company, Kalamazoo, Michigan, without charge.



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AVAILABLE FOR LEASE—October 15, 1959. City of Warren. New medical building including the following rooms—reception, private office, two examining, x-ray, business office, two toilets, EKG, laboratory and darkroom, utility. Across the street from three schools—next door to dental office with large practice. Excellent area consisting of new and older homes. Klein & Company—Designers and builders of fine medical buildings. 15940 W. McNichols Road, Detroit 35, Michigan. Vermont 7-0733.

FOR SALE—General practice office-home combination. Only M.D. in small town near resort area. Hospital ten miles away. Gross over $40,000 a year. Present M.D. leaving for a residency soon. Write: Box 19, 606 Townsend Street, Lansing 15, Michigan.

FOR SALE: Well-established general practice in city of 200,000, northeastern Michigan. Ideally located in growing suburban area. Modern, fully equipped office on ground floor. Will rent or sell on terms. Contact: Box No. 8, 606 Townsend Street, Lansing, Michigan.

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Sandoz ..... Insert (1703-1708)
Schering Corporation 1578, 1579, 1603
Searle 1681
Smith-Dorsey 1552, 1553, 1564, 1565, 1592, 1593, 1697, 1715
Smith, Kline & French Laboratories ..... Cover IV
Squibb 1546, 1547, 1713

Tutag, S. J., & Co. 1714

Upjohn 1554, 1555

Wallace Laboratories ..... Insert (1559, 1560), 1561, 1581
Wesson Oil Co. 1711
Winthrop Laboratories ..... 1562, 1563, Insert (1585-1588), 1635, 1691, 1726

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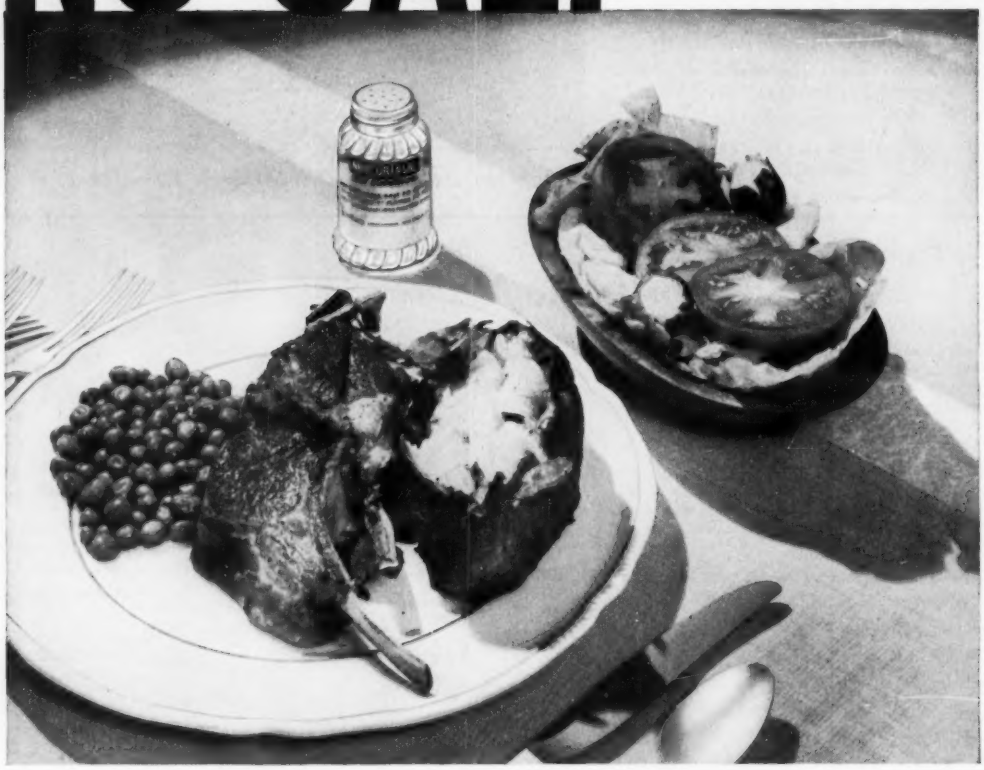

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1726

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